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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, [redacted]. 1914

No. [redacted]47

THE MISSOURI PACIFIC RAILWAY COMPANY,
APPELLANT,

vs.

THE CITY OF OMAHA.

APPEAL FROM THE UNITED STATES CIRCUIT COURT OF APPEALS
FOR THE EIGHTH CIRCUIT.

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FILED AUGUST 7, 1912.

(23,328)

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SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1913.

No. 327.

THE MISSOURI PACIFIC RAILWAY COMPANY, APPELLANT,

vs.

THE CITY OF OMAHA.

APPEAL FROM THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE EIGHTH CIRCUIT.

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a Pleas and Proceedings in the United States Circuit Court of Appeals for the Eighth Circuit, at the May Term, 1912, of said Court, before the Honorable Walter H. Sanborn, Honorable William C. Hook, and Honorable Elmer B. Adams, Circuit Judges.

Attest:

[Seal United States Circuit Court of Appeals, Eighth Circuit.]

JOHN D. JORDAN,
Clerk of the United States Circuit Court of Appeals for the Eighth Circuit.

Be it remembered that heretofore to-wit: on the fourth day of April, A. D. 1911, a transcript of record, pursuant to an appeal allowed by the Circuit Court of the United States for the District of Nebraska, was filed in the office of the Clerk of the United States Circuit Court of Appeals for the Eighth Circuit, in a certain cause wherein The Missouri Pacific Railway Company is Appellant and The City of Omaha is Appellee, which said transcript of record is in the words and figures following, to-wit:

1 Pleas before the Circuit Court of the United States for the District of Nebraska, Omaha Division, within the Eighth Judicial Circuit.

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

No. 5. Docket "Z."

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Respondent.

Be it remembered, That at the April 1910 Term of said Court and on the 18th day of July, 1910, Order was signed and filed in the Clerk's office of the Circuit Court of the United States for the District of Nebraska, Omaha Division, and duly entered of record in Journal No. 8 of said Court, which said Order is in words and figures following, to-wit:

5—Z.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Respondent.

Order.

This 18th day of July, 1910, this cause came on to be heard, upon the motion of the complainant for leave to file an amended bill, and upon its application for a restraining order, pending the hearing thereon. And thereupon the complainant appeared by Francis A. Brogan, its solicitor, and the respondent appeared by I. J. Dunn, Assistant City Attorney.

Upon Consideration it is by the Court Ordered, that the complainant be and hereby is given leave to file its amended bill of complaint instanter, and that the respondent answer the same on or before the 5th day of August, 1910. It is further

Ordered that, unless extended by order of court, the time for taking testimony on both sides, is limited to the 15th day of September, 1910, to the end that the case may be argued and submitted on its final hearing, during the month of September, 1910.

It is Further Ordered that pending the hearing of this cause, and until the further order of this Court in the premises, the respondent, the City of Omaha, its officers, attorneys, agents and servants, be and they hereby are restrained from instituting any proceedings against the Missouri Pacific Railway Company to collect the
2 penalty provided by the Nebraska statute for the alleged failure of the complainant to erect a viaduct on Dodge Street in the City of Omaha, in accordance with the terms of the ordinance set forth in the bill herein.

By the Court,

W. H. MUNGER, *Judge.*

Thereupon afterwards, to-wit: On the 18th day of July, 1910, Amended Bill of Complaint was filed in said case, which said Amended Bill of Complaint is in words and figures following, to-wit:

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

In Equity.

5—Z.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Defendant.

Amended Bill of Complainant.

To the Honorable the Judges of the Circuit Court of the United States for the District of Nebraska:

The Missouri Pacific Railway Company, upon leave of Court first had and obtained, presents this, its amended bill of Complaint:

1. It is now, and at the commencement of this suit, was, a corporation, duly organized, created and existing, under and by virtue of the laws of the State of Missouri, and it is a citizen of the State of Missouri; it is a common carrier, and as such authorized to do business in the State of Nebraska.

2. The defendant herein, the City of Omaha, is, and at the commencement of this suit and at all the times hereinafter stated, was, a city of the metropolitan class, incorporated, organized and existing under and by virtue of the laws of the State of Nebraska.

3. The amount in controversy herein, exclusive of interest and costs, exceeds the sum and value of five Thousand Dollars, and involves a controversy arising under the constitution and laws of the United States.

4. Your orator further avers that, for many years last past, it has owned, maintained and operated a line of railway from the City of St. Louis, in the State of Missouri, westwardly through said State of Missouri, into the State of Kansas; and thence northwesterly through the said State of Kansas into the State of Nebraska,
3 and to and into the City of Omaha, in said State of Nebraska; that during all of said time it has been, and at the present time is, engaged in the prosecution of an interstate business, as a railway common carrier, between the several points hereinbefore named and designated.

5. Your orator further avers that heretofore, and more than twenty years prior hereto, it lawfully acquired a right of way from the then owner thereof, over, across and along a certain tract of land then adjoining the corporate limits of the said City of Omaha, for the purpose of constructing its railway tracks along and over the same, and to gain ingress to and egress from the said City of Omaha, in connection with the main line so operated between the City of Omaha and the City of St. Louis, as aforesaid. That it did lay down, construct and operate a single track railway over said right of way, and thereafter said land was laid out into lots and blocks,

streets and avenues, as an addition to, and became a part of, the said City of Omaha, in said State of Nebraska. That Dodge Street, in the said City of Omaha, was, without lawful right, extended so as to include the said right of way so acquired by your orator as aforesaid, which said street, as so laid out and platted, was about sixty-five feet in width; and that at the same time there was laid out and platted, as a part of said addition to said City of Omaha, and running at right angles with said Dodge Street, Forty-fifth and Forty-sixth Streets, all being a part of the said City of Omaha, as aforesaid. That at the intersection of said Forty-fifth Street and Dodge Street, the track of your orator was laid on the established grade, and thereafter it continued to maintain and operate its said line of railway along and over said right of way as aforesaid, with the knowledge, consent and authority of the said defendant, the City of Omaha, and without objection or protest from it, and that it does now maintain and operate a single track railway along and over Dodge Street, being within the limits of the original right of way as acquired by your orator as hereinbefore alleged.

6. Your orator further avers that for more than twenty years, it has operated its trains and cars along and over said right of way and across said streets, on its said tracks, and that during said entire time, no collision had occurred at said intersecting streets, and the safety, convenience and comfort of those desiring to travel upon and use said Forty-fifth and Forty-sixth Streets, or any part thereof, had not been impeded or in any manner endangered; that there had never been any apparent necessity for taking other precautions than have been taken to avoid accidents at said crossing. Nevertheless,

4 your orator avers that, about ten years prior to the date hereof, by resolution, order and direction of the city council of the City of Omaha, your orator placed a watchman at said crossing at Forty-fifth and Dodge Streets, both day and night, and installed and maintained, at its own expense, an electric light at said point; that during all of said time, at its own expense, your orator has kept said watchman at said crossing and has maintained said electric light, and has taken every possible precaution to avoid accidents to any person or persons who might use, or desire to use, said crossing; that there is not now and never has been, any apparent necessity for taking other precautions to avoid collision and accidents at said crossings; that the same have been maintained at the expense of your orator in a thoroughly proper and safe condition, and its trains and cars along and over said track and right of way have at all times been operated carefully, and within the rules, regulations, limitations and restrictions required by the city ordinances of the said defendant, the City of Omaha.

7. Your orator avers that notwithstanding the precautions so taken by it as aforesaid, and that there is not and never has been any necessity for any additional precaution to avoid collision and accidents at said crossing, the city council of the said defendant, the City of Omaha, initiated proceedings to require and compel your orator to build, construct and maintain an expensive viaduct over its track on said Dodge Street, for the pretended accommodation, con-

venience and safety of those who might desire to cross said track at its intersection with Forty-fifth Street, as aforesaid; and thereon, on the 20th day of July, 1909, passed an ordinance, a copy of which is in words and figures as follows, to-wit:

"An Ordinance declaring the necessity of constructing a viaduct on and along Dodge Street, from a point at or near the east curb line of 46th Street to a point approximately 180 feet east of the Saddle Creek Sewer Right-of-way Road, over the railroad tracks of the Omaha Belt Railroad in the City of Omaha, with approaches thereto, in conformity with the general plans and specifications prepared and submitted by the City Engineer of the City of Omaha, under and in pursuance of the provisions of Resolution No. 344, approved February 1st, 1909, approving the plans and specifications so prepared and submitted by the City Engineer for the construction of said viaduct, with approaches thereto, and providing for appraising, assessing and ascertaining and determining the damages, if any, which may be caused to any property by reason of the construction of said viaduct, and its approaches.

"Be it Ordained by the City Council of the City of Omaha:

"SECTION 1. That it is necessary, and it is hereby deemed and declared necessary for the safety and protection of the public, that a viaduct, including the necessary approaches thereto, — over and along Dodge Street, from a point at or near the east curb line of 46th Street to a point approximately 180 feet east of the Saddle Creek Sewer Right-of-way Road over the railroad tracks of the Omaha Belt Railroad, in the city of Omaha, said viaduct to be constructed in conformity with the plans and specifications prepared and submitted by the City Engineer of the city of Omaha.

"SECTION 2. That the general plans and specifications for the construction of a viaduct along Dodge Street, as herein outlined, with approaches thereto, as prepared and submitted by the City Engineer of the City of Omaha, under and in pursuance of the provisions of Resolution No. 344, approved February 1st, 1909, be and the same are hereby approved and adopted.

"SECTION 3. That Councilmen Funkhouser, McGovern and Sheldon are appointed to appraise, assess, ascertain and determine the damages if any, which may be caused to any property by reason of the construction of said Viaduct, and its approaches, who shall proceed to make such appraisement in like manner as is provided for the purpose of determining the damages to property owners by reason of the grading of streets, and file their report of said appraisement with the City clerk.

"SECTION 4. That this ordinance shall take effect and be in force from and after its passage.

Passed July 20, 1909.

DAN B. BUTLER,
City Clerk.
LOUIS BURMESTER,
President City Council.

(Ordinance No. 6789.)

And thereafter, on the 26th day of July, 1909, the mayor of the city of Omaha, Hon. James C. Dahlman, vetoed said ordinance, and refused to give his assent thereto, which veto he communicated to the City Council in words and figures as follows:

"JULY 26, 1909.

To the Honorable the City Council of the City of Omaha.

GENTLEMEN: I return herewith, without my approval, document No. 3523 (being Ordinance No. 6789), passed by your Honorable Body at your regular meeting July 20th, 1909.

6 This document is an ordinance declaring the necessity of constructing a viaduct on and along Dodge Street, from a point at or near the east curb line of 46th Street to a point approximately 180 feet east of the Saddle Creek Sewer Right-of-way over the railroad tracks of the Omaha Belt Railroad in the City of Omaha, etc.

I veto this ordinance for the reason that there is no urgent necessity for a viaduct at the point named, especially from a danger standpoint, there being only one main track, and the average trains passing over this crossing is about one every hour. In the last few days the Railroad Company have connected their team track running between Dodge and Farnam Streets. This will greatly reduce the work over the Dodge Street crossing.

Many of the property owners in that vicinity are protesting against the building of the viaduct at this point, claiming it would damage their property and those engaged in business already established.

The Railroad Company agrees to immediately build a tower and gates. Also furnish whatever watchmen are necessary to guard this crossing. This seems to me would meet all of the needs for the present.

The building of this viaduct would necessitate the expenditure of at least $100,000. I don't think they should be required to do this, under the circumstances.

I therefore veto this ordinance.

Respectfully,

JAMES C. DAHLMAN, *Mayor.*"

That notwithstanding the said veto and protest of the mayor of the city of Omaha, on the 28th day of July, 1909, the said city council pretended to pass said ordinance, over the veto of the mayor, and said city council declared that there was a necessity for the construction of a viaduct on and along Dodge Street, from a point at or near the east curb line on 46th Street to a point approximately 180 feet east of the Saddle Creek Sewer Right-of-way Road, over the railroad tracks of the Omaha Belt Railway, in the city of Omaha, which at said time was a part of and belonged to the Missouri Pacific Railway Company.

And your orator avers that the passage of said ordinance never did receive the assent of the mayor and council of the said city of

Omaha, and the mayor and council of the said city of
7 Omaha did not then and have not since said time, as by law
in such cases made and provided, declared the construction of said viaduct to be a necessity for the safety and protection of the public. Notwithstanding, your orator avers that thereafter, on the 4th day of April, 1910, there was passed by the said city council an ordinance requiring the Missouri Pacific Railway Company to erect, construct and complete a viaduct, and approaches thereto, upon and along Dodge Street, from a point at or near the east curb line on 46th Street, to a point approximately 180 feet east of the Saddle Creek Sewer Right-of-way Road, over the railroad tracks of the Omaha Belt Railway Company in the city of Omaha, which said ordinance is in words and figures as follows:

"An ordinance requiring the Missouri Pacific Railway Company to erect, construct and complete a viaduct, and approaches thereto, in, upon and along Dodge Street, from a point at or near the east curb line of 46th Street to a point approximately 180 feet east of the Saddle Creek Sewer Right-of-way Road, in the city of Omaha.

"Be it Ordained by the City Council of the City of Omaha:

"SECTION 1. That the Missouri Pacific Railway Company, owning and operating railway tracks upon and across Dodge Street, in the city of Omaha, over which said tracks a viaduct has been declared to be a necessity for the safety and protection of the public, by the terms of an ordinance of the city of Omaha numbered 6789, passed July 20th, 1909, and approved July 27th, 1909, is hereby ordered, directed and required to erect, construct and complete a viaduct, including the approaches thereto, in, upon and along Dodge Street, from a point at or near the east curb line of 46th Street to a point approximately 180 feet east of the Saddle Creek Sewer Right-of-way over the various railway tracks, in the city of Omaha. Said viaduct, and approaches thereto, shall be of the width, height and strength, and of the material and manner of construction as required by the City Engineer of the city of Omaha, and substantially according to the plans and specifications prepared by him, and on file [*on*] his office, and heretofore approved by the mayor and city council of said city.

"SECTION 2. That the Missouri Pacific Railway Company be and they are hereby ordered, directed and required to commence the erection and construction of said viaduct, and the approaches thereto, not later than May 1st, 1910, and to fully complete the same on or before January 1st, 1911; the cost of the erection, construc-
tion and completion of said viaduct, and approaches thereto
8 as herein required, to be erected and completed, shall be
borne by said Missouri Pacific Railway Company.

"SECTION 3. That the City Clerk be and he hereby is directed to furnish to said Missouri Pacific Railway Company a duly certified copy of this ordinance, without unnecessary delay, and the city engineer is hereby directed to furnish the said railroad company with a copy of said plans and specifications.

"SECTION 4. That this ordinance shall take effect and be in force from and after its passage.

Passed March 29th, 1910.

DAN B. BUTLER,
City Clerk.
LOUIS BURMESTER,
President City Council.

Approved April 4, 1910.
JAMES C. DAHLMAN, *Mayor.*"

(Ordinance No. 7072).

8. Your orator further avers that the plans referred to in the said ordinance, as prepared by the City Engineer of Omaha, provide that the viaduct shall be constructed on the south side of Dodge Street, and that a grade crossing shall be left and maintained on the north side of said street, along, across and over said tracks, *so* that persons traveling along and over said Dodge Street, and crossing the tracks of your orator at the intersection with Forty-fifth Street, may, at their option, cross the same at grade, instead of using the viaduct which it is proposed shall be constructed and maintained by your orator, thereby in no manner relieving your orator from the necessity of constantly expending large sums of money in the future, as it has in the past, for the purpose of maintaining a watchman day and night at said grade crossing, and taking other precautions to avoid collision and accidents to persons using said Forty-fifth Street crossing; and your orator will in no manner, directly or indirectly, receive any benefit or protection as a result of the expenditure of said large sums of money in the construction and maintenance of said viaduct so declared to be necessary by the said city council of Omaha.

9. Your orator further avers that it is provided by law that:

"The width, height and strength of any such viaducts and approaches thereto, the material therefor, and the manner of construction thereof, shall be as required by the City Engineer, and approved by the mayor and council."

9 That the said city engineer has prepared a blue print of such proposed viaduct, and caused the same to be filed with the city clerk, and copies thereof served upon your orator, but that such plans and blue print are so indefinite and uncertain as to the character of such structure, and the materials to be used, and the strength thereof, that your orator can not intelligently understand what it is required to do; that no detailed specifications have been prepared by the city engineer, and approved by the mayor and council, but enough appears from the said blue print so filed, as aforesaid, to indicate that the said viaduct is to be constructed of steel, and the height, width and length of such structure is given and indicated by such plans; that, from such plans, it appears that it will take a long period of time, not less than six months, as your orator is informed and believes, to secure the material for the construction of such viaduct, as provided by the terms and conditions of such ordinance. Nevertheless your orator avers

that said ordinance was approved on the 4th day of April, 1910, and that it is provided therein:

"That the Missouri Pacific Railway Company be and they are hereby ordered, directed and required to commence the erection and construction of said viaduct, and the approaches thereto, not later than May 1st, 1910, and to fully complete the same on or before January 1st, 1911. The cost of the erection, construction and completion of said viaduct, and approaches thereto, as herein required, to be erected and completed shall be borne by said Missouri Pacific Railway Company."

And by Section 3 of said ordinance, it is provided that:

"The City Clerk be and he hereby is directed to furnish to said Missouri Pacific Railway Company a duly certified copy of this ordinance, without unnecessary delay, and the City Engineer is hereby directed to furnish the said railroad company with a copy of said plans and specifications."

That thereafter a certified copy of said ordinance was furnished your orator by said city clerk, but your orator avers that it was a physical impossibility for it to comply with the terms and conditions thereof, and begin the construction of said viaduct, under said plans so prepared by said city engineer, on or before the first day of May, 1910; that if the material for such viaduct had been all ready at the foundry, or where the same could be secured, for loading on to the cars, it would have been impossible to transport the same from where manufactured and produced to the city of Omaha, in time to begin such work, as provided by the terms of such ordinance.

That the material therefor must necessarily be prepared specially with reference to the plans prepared by the city engineer, and that no steel company in the United States, so far as your orator is advised, is equipped with facilities to have taken the said plans so prepared by the said city engineer, as aforesaid, and produced the framework of said viaduct, after the passage of the said ordinance, on April 4th, 1910, and had the same ready and delivered at Omaha by the first day of May, 1910. That steel work of the dimensions and character indicated by such plans, is not kept in stock by any factory, but the same must be manufactured in accordance with such plans, in order to comply with the same, and that, on account of the crowded conditions of the steel manufacturing plants of the United States, it is doubtful whether, if such an order had been placed on April 4th, 1910, the manufactured material could have been secured before the first day of October, 1910; and yet, according to the terms, conditions and requirements of the said ordinance, your orator is directed to perform an impossible act, or be subjected to a fine of one hundred dollars, and each day thereafter that said company shall fail, neglect or refuse to comply with the terms and conditions of such ordinance, should be deemed and held to be a separate and distinct offense; so that your orator says that many thousands of dollars would accrue, as penalties and fines, under the provisions of the law under which the said ordinance was passed, before it could possibly comply with the requirements thereof, unless the enforcement of such ordinance shall be enjoined, it will sustain great and irreparable loss and

damage, for which it would have no adequate remedy at law or otherwise.

10. Your orator further avers that although the said manner of construction, as indicated by the blue print prepared by the city engineer, and approved by the city council, is not sufficiently definite to enable the respondent to let a contract for the construction of the said work, yet it does appear from the said manner of construction, as indicated in the said blue print, that the width of the roadway required, is Thirty-five feet, and in addition thereto, two six-foot sidewalks are called for, and the specifications on file in the city engineer's office and referred to in the plan of construction, provide for a moving load of 150 pounds per square foot on the roadway, and the said specifications also provide that the viaduct shall be designed so as to carry two street cars coupled together, on each track, each weighing 35 tons when loaded, and to be preceded and followed by a load of 1650 pounds per lineal foot of bridge on each track, being equivalent to a solid line of street cars with ends touching entirely over the whole length of the viaduct on each track, and in addition to these cars, the entire remaining floor and sidewalk to be loaded with 150 pounds per square foot
11 of floor surface. And the specifications further provide that the strength of the viaduct shall be increased 50% over that made necessary for the very heaviest street cars, to provide for what is called the "effect of impact." And the specifications also provide that the fiber strain on floor timbers shall not exceed 1200 pounds per square inch, thereby requiring a heavier timber construction. That in making the said provisions, and many other provisions in the said plans and specifications, the said defendant has required the construction of a viaduct of greater height, and width and strength, and of greater cost than would be required for the purpose of carrying the ordinary street traffic over the said railway crossing, and has done so for the avowed purpose of causing and enabling the cars and traffic of the Omaha & Council Bluffs Street Railway Company, a common carrier engaged in carrying on business within the city of Omaha as a street railway company and a common carrier of passengers for hire within the said city of Omaha, and likewise engaged in carrying on business as an interurban railway, as a common carrier of passengers for hire between the said city of Omaha and other suburban cities and villages and settlements, adjoining the city of Omaha, to be carried over the said viaduct, and for the purpose of enabling the said street railway company to conduct its said traffic over a viaduct to be constructed wholly at the expense of your orator. Your orator avers that the said attempt on the part of the respondent, to compel your orator to expend money for the purpose of aiding in the operation of the said street railway company, is a violation of the rights secured to our orator under the constitution of the United States, in that it is a taking of the property — your orator, without compensation, and not for a public use or benefit, but for the private use of the said street railway company, a common carrier, engaged, like your orator, in the carrying on of business for profit, and the enforcement of the said ordinance would deprive

your orator of the equal protection of the laws, contrary to the constitution of the United States.

11. Your orator further avers that by the plan of construction adopted by the defendant, your orator is required to construct a viaduct 810 feet in length, whereas a viaduct 600 feet in length would be amply sufficient to carry the ordinary street traffic over the said crossing. But in requiring the construction of a viaduct 810 feet in length, the respondent has done so for the avowed purpose of carrying the ordinary street traffic and the traffic of the said street railway company over a portion of the said Dodge Street across which the said respondent intends to cause a part of its
12 boulevard system to be extended, and the intention and purpose of the said ordinance, in so far as it requires the extension of the viaduct eastward over that portion of the said Dodge Street across which it intends to extend its said boulevard system, is to provide a means whereby the traffic along its said boulevard may pass under the said viaduct, and thereby escape crossing the tracks of the said street railway company on the same surface; and your orator avers that the attempt on the part of the respondent to compel your orator to pay for the construction of a viaduct, a part of which shall be used for the purpose of carrying the ordinary street traffic, and particularly the traffic of the said street railway company, over a part of the boulevard system of the city of Omaha, constitutes a taking of the property of your orator, without compensation, and denies your orator the equal protection of the laws, contrary to the constitution of the United States.

12. Your orator further avers that there is not now and never has been any necessity for the construction of such viaduct; that the point where the same is proposed to be constructed is in a sparsely settled portion of the city of Omaha, and near to the corporate limits thereof, and that, while the said Dodge Street, at its intersection with Forty-fifth Street, is used and traveled upon to some extent, yet your orator maintains and operates but one track across the said street, and, as hereinbefore alleged, at its own expense, keeps and maintains a watchman day and night at said crossing, and maintains an electric light at said point, and there is scarcely a possibility of injury as a result of accidents or collisions at the said crossing. That your orator's trains and cars along and over said track are run and operated within the limitations and restrictions of the city ordinances of the city of Omaha, and, as hereinbefore alleged, during all the years in which the same had been maintained and operated across, along and over said street at said intersection, up to the time of the commencement of this suit, no collision had occurred, and no injury or damage had resulted to anyone. That the cost of such structure will exceed the sum of $75,000.00, and the expenditure of such a large sum of money will be of no corresponding benefit to your orator, and will be of little or no benefit to the people who generally so travel along and over said Dodge Street at its intersection with Forty-fifth Street.

13. Your orator further avers that the act of the legislature of the State of Nebraska, being Section 128 of Chapter 12*a*, relating to cities of the metropolitan class, is unconstitutional and void in

this, that it denies to your orator the equal protection of the law, and deprives it of its property without due process of law, and
13 attempts to authorize the taking and appropriating of its property for a pretended public use without compensation, and in violation of the guarantees of the constitution of the United States; that it does not provide for or contemplate any hearing before any administrative or judicial tribunal as to the necessity for such appropriation; that its provisions are arbitrary and unjust, and wholly unreasonable in that it provides for no notice of such contemplated action, and prescribes penalties, for neglecting or refusing to comply with the demands and requirements of the city council, of so drastic and unreasonable a nature as to subject the railway company to great damage and loss, if it shall attempt by judicial proceedings, to question the reasonableness of such contemplated action; that it provides, for neglect to comply with the orders and requirements of the city council to erect, construct, re-construct, repair and maintain such viaduct, that it shall be guilty of a misdemeanor, and,

"Upon conviction of any such company or companies shall be fined one hundred dollars, and each day such company or companies shall fail, neglect or refuse to perform such duty, shall be deemed and held to be a separate and distinct offense, and, in addition to the penalty herein provided, any such company or companies shall be compelled, by mandamus or other appropriate proceedings, to erect, construct, re-construct or repair any viaduct as may be required by ordinance as herein provided."

And said act also pretends to authorize and vest in the mayor and council the power,

"Whenever any railroad company or companies shall fail, neglect or refuse to erect, construct, re-construct or repair any viaduct or viaducts, after having been required so to do as herein provided to proceed with the erection, construction, re-construction or repair of such viaduct or viaducts by contract or in such other manner as may be provided by ordinance, and assess the cost of the erection, construction, re-construction or repair of such viaduct or viaducts against the property of the railroad company or companies required to erect, construct, re-construct or repair the same, and such costs shall be valid and subsisting lien against such property and shall also be a legal indebtedness of said company or companies in favor of such city, and may be enforced and collected by suit in the proper Court."

That by the terms and conditions of the said act of the legislature, your orator is precluded from having any voice whatever in the determination of the question as to the necessity of such im-
14 provement, or as to the plans and specifications therefor, or to even suggest modifications thereof, to the end that the same might be constructed and maintained in harmony with the operation of the trains and cars of your orator, or to give to your orator any opportunity to make suggestions with reference thereto, in order to protect its employees from danger in the discharge of their duties as such employees. That said mayor and council are,

by the terms thereof, given exclusive and absolute authority to impose any conditions or restrictions which, in their judgment, may be necessary, and, for failure to comply therewith, your orator will be subjected, as aforesaid, to the payment of the drastic fines and penalties provided for by the terms and conditions of the act under which the said ordinance is assumed to have been passed and enacted.

14. Your orator further avers that the said defendant the City of Omaha, is threatening to enforce the requirements of the said ordinance, and to subject your orator to the penalties provided by said law of the State of Nebraska, under which the defendant has assumed to act; that such threatened action on the part of the said defendant will cause an irreparable injury and damage to be done, to your orator, who has no other remedy than in equity, to protect it from such threatened action on the part of the said defendant. That if your orator shall fail or neglect to comply with the terms and requirements of the said ordinance, it will be subjected to a multiplicity of suits. That, notwithstanding the facts aforesaid, the said defendant threatens and intends, and will, unless restrained by order of this court, attempt to treat and will treat the said ordinances as valid and effective, and will attempt to enforce against your orator the drastic and unreasonable penalties and fines imposed by the said act of the legislature under which the said defendant is assuming to act, as hereinbefore alleged.

In consideration whereof, and forasmuch as your orator is remediless in the premises at and by the rules of the common law, and can have adequate relief only in a court of equity where matters of this nature are properly cognizable and relievable,

To the end that the said defendant herein may, if it can, show why your orator should not have the relief herein prayed, and that it may answer this, your orator's amended bill of complaint, (but not under oath, answer of the defendant under oath being hereby expressly waived); and that the said defendant be forever enjoined from taking any steps or instituting any proceedings under said ordinances numbered 6789 and 7072 aforesaid, and from
15 constructing or causing to be constructed, said viaduct, and charging the cost thereof, or any thereof, to your orator, and from instituting any proceedings against your orator to charge it with violating said act of the legislature of the state of Nebraska under which the said defendant has assumed to act in the premises, and from in any manner treating said ordinances, or either thereof, as valid or binding; and that, pending the final hearing of this cause, the said defendant, its officers, agents, servants and employees, be temporarily restrained and enjoined; and that your orator have such other and further relief in the premises as the circumstances of the case may require, and as may be agreeable to equity.

May it please your Honors to grant unto your orators a writ of subpœna issuing out of and under the seal of this Honorable Court, directed to the defendant, the City of Omaha, commanding it to appear and answer this, your orator's amended bill of complaint, (but not under oath, answer under oath being, as above set forth, expressly waived), according to the course and practice of this Court,

and to stand to, perform and abide by such order and decree in the premises as to your Honors shall seem meet and equitable.

And your orator will ever pray.

B. P. WAGGENER,
F. A. BROGAN,
Solicitors for Complainant.

W. D. McHUGH,
Of Counsel.

UNITED STATES OF AMERICA,
District of Nebraska:

Francis A. Brogan, being first duly sworn according to law, on oath deposes and says that he is solicitor for the complainant in the above and foregoing amended bill of complaint; that the facts set forth in the said amended bill are within his personal knowledge, and that the same are true in substance and in fact, except as to such matters as are alleged on information and belief, and as to such matters, affiant believes them to be true.

FRANCIS A. BROGAN.

Subscribed in my presence and sworn to before me, this 18th day of July, 1910.

[SEAL.]

GEO. H. THUMMEL, *Clerk,*
By JOHN NICHOLSON, *Deputy.*

Endorsed: Filed Jul- 18, 1910. Geo. H. Thummel, Clerk.

Thereupon afterwards, to-wit: On the 1st day of August, 1910,
16 Answer of Defendant to Amended Bill of Complaint was filed in said case, which said Answer is in words and figures following, to-wit:

In the Circuit Court of the United States, in and for the District of Nebraska, Omaha Division.

In Equity.

No. 5, Doc. Z.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Defendant.

Answer of Defendant to Amended Bill of Complaint.

To the Honorable Judges of the Circuit Court of the United States for the District of Nebraska:

This defendant, reserving all manner of exceptions that may be had to the uncertainties and imperfections of the amended bill of complaint herein, comes and answers thereto, or to so much thereof as it is advised is material to answer, and says:

1. Defendant further answering said amended bill of complaint denies that said complainant is a corporation duly created and existing under the laws of the State of Missouri, and denies that it is a citizen of said state and that it is authorized to do business in the State of Nebraska.

2. Defendant admits that it is a city of the metropolitan class organized and existing under the laws of the State of Nebraska.

3. Defendant denies that the amount in controversy herein, exclusive of interest and costs, exceeds the sum in value of Two thousand dollars, and denies that the controversy is one arising under the constitution and laws of the United States or either of them.

4. Defendant admits that the complainant has for a number of years maintained and operated a line of railway in portions of Kansas, Missouri and Nebraska, and that a portion of said railway line is located in the City of Omaha and crosses Dodge street in said city near 45th street.

5. Defendant denies that complainant lawfully acquired a right of way over the land where its railway line was constructed across Dodge street, and denies that complainant constructed the railway tracks referred to in the fifth paragraph of its bill of complaint, but alleges that said tracks were constructed by the Omaha Belt Railway Company, and that said road for many years was known as the Omaha Belt Railway Company; defendant admits that for a long time there has been what complainant chooses to call a single
17 track railway, operated across Dodge street and between the cities of Omaha and South Omaha, over which it is possible with a great deal of care to slowly operate or run trains. Defendant denies that Dodge street in the City of Omaha was unlawfully extended over and across the railway line of the said complainant, but alleges that said Dodge street was lawfully laid out and has been one of the public thoroughfares, continuously traveled over and across said railway line for 30 years last past and defendant admits that 45th street and 46th street cross Dodge street extending north and south of Dodge street; and that all of said streets are public highways in said city of Omaha, and defendant denies that at the intersection of 45th and Dodge streets the track of the complainant was laid on the established grade of said street, but admits that since the date when said track was laid said railroad has been maintained, but denies that it has been with the consent or authority of the City of Omaha, and defendant admits that the complainant does now maintain and operate a railway along and over Dodge Street within said City of Omaha.

6. Defendant further answering the amended petition of the said complainant admits that for more than twenty years trains and cars have been operated over and along the railroad tracks on Dodge street, but denies that during said time no collision has occurred at said intersecting streets, and that the safety, convenience and comfort of those traveling along 45th street and 46th street have not been impeded or in any manner endangered by the operation of trains on said railroad track; denies that there has never been any necessity for other precautions than those which have been taken to

avoid accidents at said crossing; admits that some years ago by order of the City Council complainant placed a watchman at the crossing at 45th street and Dodge street and that it was compelled to install and maintain an electric light at said point, and that this company has kept a watchman at said crossing, but denies that he has been so kept there during the day and night, and denies that the complainant has taken every possible precaution to avoid accidents to all persons using said crossing. Defendant denies that there is not now any necessity for taking other precautions to avoid collisions and accidents at said crossing, and defendant alleges the fact to be that there is great necessity for additional precautions, and that the mayor and city council have by ordinance so declared and have required that a viaduct shall be constructed and maintained at said crossing over said railway tracks, and defendant denies that said complainant's cars and trains have been operated in a proper
18 and safe condition, and denies that said railway tracks have been maintained in good repair or in a proper and safe condition for the operation of trains and cars, and denies that said complainant has operated its trains and cars over its said tracks within the regulations, limitations and restrictions required by the city ordinances of the City of Omaha or the laws of the State of Nebraska; and defendant further states the fact to be that said complainant has persistently refused to put its tracks in a reasonably safe condition, but that its said railroad track known as the Belt line within the limits of the City of Omaha has for years been in a dilapidated, unsafe and dangerous condition, and said complainant has failed and refused to make proper or necessary repairs thereto.

7. Defendant further admits that the mayor and city council of the city of Omaha passed an ordinance declaring the necessity for the construction of a viaduct over the railway tracks of the complainant on Dodge street, and later on passed an ordinance requiring and directing complainant to construct such viaduct; and alleges that said viaduct is intended for the accommodation and safety of those who are required to use said intersection at 45th and Dodge streets, and admits that a correct copy of the ordinance declaring the necessity for the construction of said viaduct is set out in complainant's bill; and defendant admits that James C. Dahlman, mayor of the city of Omaha, returned said ordinance to the city council without his approval, but that on the 28th day of July, 1909, the council passed said ordinance over the veto of the mayor, and alleges that by virtue thereof said ordinance became a valid ordinance, went into force as provided therein, and is now a valid and existing ordinance of the City of Omaha. And defendant further denies the allegations in said petition that said ordinance did not receive the assent of the mayor and council of the City of Omaha, and alleges the fact to be that it did in legal effect receive the assent of the mayor and city council in that it received a sufficient number of votes in the city council after being returned by the mayor, to render said ordinance legal and valid notwithstanding the objection of the mayor thereto. And defendant admits that on April 4th, 1910, the city counsel passed an ordinance requiring the complain-

ant to construct a viaduct upon and along Dodge street from a point at or near the east curb line of 46th street to a point approximately 180 feet east of the Saddle Creek Sewer Right-of-way road, over the railroad tracks of the Omaha Belt Railway, and that a correct copy of said ordinance is set out in complainant's bill.

8. Defendant admits that the plans prepared by the City Engineer provide that the viaduct shall be constructed on the south side of 45th street and that a grade crossing shall be maintained on the north side of said street over said tracks so that persons traveling along and over said 45th street and crossing the tracks of complainant at the intersection of Dodge street, may at their option cross at the grade crossing instead of using the viaduct, but defendant denies that the said arrangement and construction of the viaduct will in no manner relieve complainant from the necessity of expending large sums of money in the future in maintaining a watch man day and night at said grade crossing and taking other precautions to avoid collisions and accidents at said 45th street crossing; and defendant denies the allegation that complainant will in no manner receive any benefit or protection as a result of the expenditure in the construction and maintenance of said viaduct as declared necessary by the city.

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9. Defendant admits that the law provides that a viaduct in the city of Omaha shall be as required by the city engineer and approved by the mayor and council; that the city engineer has prepared plans for the construction of the proposed viaduct, caused same to be filed with the city clerk and copies to be served upon complainant, but defendant denies that said plans are uncertain or indefinite as to the character of structure, or the materials to be used, or strength thereof, but is unable to say whether complainant can intelligently understand what it is required to do, but alleges in that regard that if it cannot intelligently understand what it is required to do, the difficulty is with its understanding and not with the plans; and defendants admit that no detail specifications have been prepared by the engineer and approved by the mayor and council, but alleges the fact to be that the plans and specifications are of a general character and sufficient to notify the said complainant of the length, height, width and strength of said proposed viaduct, and the material out of which the said structure shall be built, and sufficient to enable the said company to prepare detailed plans and specifications, and further more, the city engineer of the city of Omaha is ready and willing to give to the said complainant additional information with reference to the construction of said viaduct, at any time. Defendant denies that it will take a long period of time to secure the material for the construction of such viaduct; alleges that the material sufficient to begin the construction can be obtained in Omaha within sixty days from date of giving the order; that from that date forward the material for the construction of the viaduct can and will be furnished upon the ground as fast as it can be constructed and that a firm engaged in the manufacture of viaduct material stands

ready to furnish the material within sixty days and to proceed
20 with the construction of the viaduct at the end of sixty days and to give bond to construct it within six months from the date when the first material will be ready for delivery. Defendant admits that the ordinance requiring the construction of the viaduct provided that complainant must begin the construction not later than May 1st, 1910, and finish same by January 1st, 1911, and that the ordinance required the clerk to furnish the complainant a copy of the ordinance without delay and that the engineer furnish a copy of the plans and specifications; that a certified copy of said ordinance was furnished as required to the complainant, and defendant denies that it was impossible for complainant to begin the construction of said viaduct on the 1st day of May, 1910. Defendant further alleges that said ordinance did not require that the complainant begin the actual setting up of the structure by May 1st, but did require that the complainant, instead of denying that it is obliged to comply with said ordinance and preparing to avoid the construction of said viaduct and preparing to contest the right of the city to compel it so to do in the courts and elsewhere, that it must begin on or before May 1st, the preliminary work necessary for the construction of said viaduct; the city recognizing that certain preliminary work and preparation is necessary in the construction of a viaduct of the kind ordered by the city, and all that the city expects or requires is that said complainant shall begin the preliminary work which in due course of time and on or before January 1, 1911, will result in the construction and completion of such viaduct. And the defendant further alleges the fact to be that said complainant has made no effort to begin the construction of said viaduct by May 1st, 1910, and has had no intention of taking any steps to prepare itself to begin said work by May 1st of said year, but on the contrary has pursued a determined course to make no preparation of any kind or under any circumstances to begin the construction of said viaduct by May 1st, or at any other day, nor until compelled so to do, but on the other hand has determined from the beginning to oppose by every means in its power a compliance with the provisions of said ordinance and to avoid by suits in court and any other means at hand, the construction of said viaduct at all, and to avoid the commencement of the construction of said viaduct on any date in the near or remote future.

10. Defendant admits that it appears from the plans prepared by the city engineer that the width of the roadway required, is thirty-five feet and that two six-foot sidewalks are called for, in addition, and that the specifications provided for removing a load of one-hundred and fifty pounds per square foot on the roadway and that
said viaduct shall be sufficient to carry two street cars coupled
21 together, on each track, each weighing thirty-five tons when loaded, and to be preceded and followed by a load of sixteen hundred and fifty pounds per lineal foot of bridge on each track, and in addition to these cars, the entire remaining floor and sidewalks to be loaded with one hundred and fifty pounds per square foot of floor surface, and that the specifications provide that the strength

of the viaduct shall be increased fifty per cent, over that made necessary for the heaviest street cars, to provide what is called the "effect of impact"; and admit that the specifications provide that the fiber strain on the floor timber shall not exceed twelve hundred pounds per square inch. Defendant denies that said proposed viaduct is required to be of greater height, width or strength, or of a greater cost than is necessary to carry ordinary street traffic over said crossing, but admit that the proposed viaduct is required to be of sufficient strength to carry the street cars of the Omaha & Council Bluffs Street Railway Company over said crossing, but alleges that said street car traffic is a part of the common, ordinary and necessary traffic on said street over said crossing; that the construction of the viaduct referred to must be of such a character as to close the surface of Dodge street to street car traffic and it would be impossible to run or operate street cars over said crossing on the surface of the street after the construction of the proposed viaduct, and furthermore said complainant demands that if a viaduct of any kind shall be built over the crossing that the surface of the street shall be closed entirely to traffic of any kind at said crossing; and defendant further states that a majority of the travel over said crossing is street car traffic. Defendant denies that requiring said company to construct a viaduct sufficient to accommodate the traffic over said crossing, which is now and for many years has been legally carried on on Dodge street over said crossing, will deprive said complainant of any of its rights under the law, and denies that such requirement will amount to a taking of the property of said company without compensation or due process of law, and denies that it will deprive said complainant of the equal protection of the law.

11. Defendant admits that complainant is required to construct a viaduct 810 feet long, and denies that one 600 feet long would be sufficient; and defendant alleges that complainant is required to build a viaduct 810 feet long because said railroad company having rendered the crossing at 45th street and Dodge street dangerous so that the construction of a viaduct has become necessary, the city claims the right and is exercising the right to compel said complainant
22 to construct a viaduct of such length, in such manner and upon such portions of said street as will not interfere with the use of said street for the legitimate purposes for which said city intends, desires and has a right to use such street. That said defendant is not required to permit said company to build a viaduct according to its own ideas or to suit its own convenience or to permit the construction of said viaduct in such a way as to prevent the proper and legitimate use of said streets, highways, parks or boulevards which the city may now or at some future time desire to use in crossing said street either east or west of said crossing. Defendant alleges the fact to be that it has an established system of boulevards throughout the city of Omaha, and that it is necessary that its boulevards shall consist of one continuous route and that it would prove inconvenient and destructive to permit the end of a viaduct to be built in the street across the line of a boulevard, thus requiring the boulevard to end at the viaduct or to turn two or three hundred feet

to the right or left and over ground and along a route unsuitable for boulevard purposes; that said complainant is not required by said ordinance to build a viaduct greater in size, strength or length than is reasonably necessary to accommodate the ordinary street traffic, and to meet the needs of the public, and of no greater size or dimension than will be necessary to render Dodge street as suitable and safe for public travel, and to enable the city of Omaha to lay out and extent its streets and boulevards across said Dodge street for the accommodation of the public, as could have been done had the construction of a viaduct not been made necessary by said complainant in rendering said street crossing dangerous.

12. Defendant further answering said amended complaint avers that there is no necessity for the construction of the viaduct referred to, and denies that 45th street and Dodge street is any sparsely settled portion of the city, and denies that the fact that complainant operates but one line of railway across said street and keeps a watchman and an electric light at said point, renders a viaduct unnecessary; and defendant further states that it was the legitimate and proper function of the city council of the city of Omaha to determine the necessity for the construction of a viaduct at the point referred to, and that said necessity having been declared by ordinance as provided by law, this court has no jurisdiction to examine or determine the question as to whether or not such necessity exists. Defendant admits that the cost of the viaduct will proximate $75,000, and denies that it is material as to whether or not the complainant will receive a corresponding benefit from the expenditure,
23 and denies the allegation that such a viaduct will be of little or no benefit to the people who generally travel on and over said 45th street at its intersection with Dodge street, and allege in connection therewith that the viaduct is to be for the benefit of those who travel over and along Dodge street at its intersection with 45th street as well as for those who travel along 45th street.

13. Defendant further answering said complaint denies that Section 128 of Chapter 12*a* of the laws of Nebraska, is unconstitutional or that said law denies plaintiff the equal protection of the laws or deprives it of its property without due process of law, or provides for the infliction of unreasonable penalties upon the complainant or upon any railroad company for its failure and refusal to comply with the ordinances of the city requiring the construction of a viaduct at such places as the mayor and council by ordinance may direct. Defendant admits that said section provides that railroad companies may be compelled by mandamus to construct and reconstruct a viaduct at such points as the mayor and council by ordinance may find necessary for the public protection and by proper ordinance ordered. Defendant further admits that the city of Omaha will enforce the ordinance requiring the construction of a viaduct at 45th and Dodge streets in said city, in that the city will apply to the courts of the State of Nebraska for a mandamus to compel said complainant to construct such viaduct as ordered and required by the ordinance heretofore referred to passed by said city. Defendant denies that the enforcement of such ordinance will cause complain-

ant irreparable injury or damage, but on the other hand will simply require said complainant to perform its plain duty to the public in the protection of those who in the lawful use of the highways of the City of Omaha are endangered by the operation of complainant's railroad over and along Dodge and 45th streets in said city; and defendant denies that said complainant will be subjected to a multiplicity of suits, excepting the multiplicity that it is evidently ready and determined to commence and carry on for the purpose of trying to avoid the construction of said viaduct; that the only suit that it will be subjected to on the part of the City of Omaha with reference to the construction of said viaduct, is the one wherein the city may be obliged to bring a mandamus proceeding in the state courts to compel said complainant to construct such viaduct.

And defendant further states that the question of whether or not a viaduct ought to be constructed and whether the construction of a viaduct is necessary along the line of a public street, and over the tracks of a railroad company laid on the surface of such street
24 along and over which trains are operated, is one of police power, and in requiring the construction of a viaduct under such circumstances, the mayor and city council act in conformity to directions and authority specifically conferred by the state, and act as the representative of the state, both in the exercise of the police power and in determining the extent and necessity of the exercise of such power; that the question as to whether or not a viaduct is necessary at the point referred to, to-wit, 45th and Dodge streets, was one which the legislature had exclusive right and jurisdiction to determine, and that unless the legislature acted through malice, fraud or corruption this court has no jurisdiction to interfere with the conclusion to which said city through its mayor and city council came in the determination of said question; that this court has no power or authority to review the action of the mayor and council in determining that the construction of a viaduct is required for the protection of the public at said point, and for that reason this court is without jurisdiction to entertain the bill of complaint herein, or to grant the relief prayed for therein.

And defendant further answering said petition alleges that Section 128 of Chapter 12*a* of the Statutes of Nebraska does not deny to complainant the equal protection of the law, or deprive it of its property without due process of law, nor authorize the taking or appropriation of its property without compensation, or in violation of the constitution of the United States; but defendant admits that said section does not provide for hearing before any administrative or judicial tribunal as to the necessity for the construction of a viaduct, but does provide for the determination of that question by a proper legislative body, to-wit, the mayor and city council of the city. Defendant denies that the provisions of said section are unreasonable in failing to provide for notice, or that it provides penalties for refusing to comply with the requirements of the city council in the matter of the construction of viaduct, or that it provides that the city may by judicial proceedings compel the complainant to construct a viaduct when found to be necessary; nor is

the provision that if the company shall refuse to comply with the requirements of the city to construct a viaduct that it shall be considered guilty of a misdemeanor and upon conviction thereof be punished as provided in said section, unreasonable; nor is it unreasonable or unjust that the legislature gave to the city power to compel complainant by mandamus to construct such viaduct when found and determined by the city council to be necessary and essential to the public [welfare] and safety; nor is said section unreasonable because of the provision that the mayor and council may in case the complainant refuses, construct such viaduct and assess the cost of the erection thereof against the property of the complainant and that such cost shall be a valid and subsisting lien against its property until paid. Neither is said section unreasonable because it does not provide that railroad company before being ordered or required to construct a viaduct shall exercise legislative functions and determine for itself whether it will or will not construct such a viaduct or whether or not such viaduct is necessary, such a provision would be thoroughly absurd and would be equal to a declaration that no viaduct shall be constructed by any railroad at any time or under any circumstances; nor is said section unreasonable because it does not give to the railroad company the right to determine what kind of a viaduct shall be constructed, but defendant alleges that said section does not deny, and that the City of Omaha has not denied, nor does it intend to deny, to the complainant the right to submit detailed plans and specifications for the construction of the viaduct ordered, to the city engineer and the mayor or city council, and if such detailed plans and specifications comply with the general plans prepared by the city engineer and approved by the mayor and city council such plans will be approved and the complainant will be permitted to construct a viaduct according thereto; and defendant denies that the general plans and specifications prepared by the city engineer and approved by the mayor and city council contemplate or require a construction of a viaduct out of harmony with the operation of trains and cars over and along the tracks of the complainant, or a viaduct which will in any way endanger the safety of any employé of the complainant. Defendant admits that the legislature of the State of Nebraska gave to the mayor and city council the exclusive right to impose any and all proper conditions and restrictions according to their judgment, in the matter of the construction of said viaduct, it being the purpose of the legislature to place in the hands of the mayor and city council the power, and made it their duty to provide for the public safety and welfare, and to require any railroad corporation which by the operation of its cars over and along the surface of a public street of a crossing on the public highway, to so safeguard such crossings as to protect the traveling public from unreasonable danger; and it was the purpose of the legislature to enable the mayor and city council to protect the traveling public along and over the highways in the City of Omaha by requiring railroad companies to construct viaducts and eliminate grade crossings whenever and wherever in

the judgment of the mayor and council the public safety and protection so required.

14. Defendant admits that it is the purpose of the City of Omaha to require the complainant to construct the viaduct provided
26 for in the ordinances heretofore referred to, and that if said complainant refuses so to do the defendant will avail itself of the right to go into court and by mandamus compel said complainant to construct said viaduct; but defendant denies that requiring said complainant to construct said viaduct will cause irreparable injury or damage to the complainant, and alleges that wherein said complainant contends that the requirement is unreasonable and unjust it has a full, complete and speedy remedy at law, and that it cannot be compelled to construct such viaduct if the requirement is not a legal requirement on the part of the defendant, and that unless it is the duty of the complainant to construct such viaduct, and it can be required so to do, it cannot be convicted of a misdemeanor or subjected to the penalties provided for in Section 128 heretofore referred to. Defendant further admits that it intends to treat the ordinance declaring the necessity for the construction of said viaduct and ordering complainant to so construct said viaduct as legal and valid ordinances, and to require complainant to comply therewith.

15. Defendant further answering said amended bill of complaint alleges that the approach to said viaduct will begin about 597 feet east of complainant's railroad tracks, and at a point 218 feet west of said track-; that the viaduct will be built on the south side of Dodge street leaving a roadway about 16 feet in width on the north side of said viaduct, whereby it will be possible for persons to cross said complainant's railway tracks on grade. But in this regard defendant alleges that the sole purpose of leaving said roadway and grade crossing is to accommodate persons engaged in business at practically the intersection of 45th and Dodge streets, whose property and business would be destroyed and practically confiscated if Dodge street should be closed from one end of said viaduct to the other; that the only persons who will have occasion to use the surface of Dodge street or cross said tracks on grade after the construction of the viaduct will be those entering or coming from two coal yards, one general building material yard, and one blacksmith shop and lumber yard, all located on the different corners of 45th and Dodge streets; and there is no other way of access by team or wagon to the yard of the Updike Lumber & Coal Company, except from Dodge street, and the same is in a measure true of three other business institutions located at 45th and Dodge streets; that it will not be necessary for persons going to and from the yards of the Updike Lumber & Coal Company from the east to cross said railway tracks at all, neither will it be necessary for teams entering the yards west of the tracks to cross the tracks at any time, but they may do so if they see fit.
Defendant denies, however, that there will be any other travel
27 upon Dodge and 45th streets after the construction of the viaduct, and denies that it will be necessary to maintain a watchman there, especially at night.

16. Defendant further alleges that as a matter of fact complainant

has two tracks across Dodge street at its intersection with 45th street, one being for switching purposes, and that said company does a great deal of switching of freight cars over and across Dodge street in addition to its regular freight and passenger trains; that in fact, practically all of its cars used in bringing in and taking out material to the Updike Lumber & Coal yards and other business institutions at 45th and Dodge streets, are switched back and forth over the Dodge street crossing.

17. Defendant further denies that 45th and Dodge streets is a sparsely settled community, but alleges the fact to be that at the particular crossing referred to there is a great deal of business carried on and that the surrounding community is a thickly settled residence portion of the City of Omaha, and that just a few blocks beyond is the town of Dundee with 1,100 population, and that Dodge street is the principal thoroughfare by which a great many persons daily travel from Omaha to Dundee and from Dundee to Omaha, and that Dodge street is also one of the principal thoroughfares leading to the City of Omaha from the western portions of Douglas County. That the Omaha & Council Bluffs Street Railway Company operates over its double track, street railway across 45th street, along Dodge street, one hundred and forty cars each day, which said cars each cross the track of the complainant twice each day, beginning at 5 o'clock A. M., and the last one crossing at 1 o'clock A. M.; that said street railway company carries on the average on its cars over said crossing 1,200 passengers daily; that there is a steep incline for some two blocks on Dodge street west of said railway tracks towards said tracks from the west, so that a street car if not controlled by the brakes would run eastward on Dodge street and onto said railway tracks of the complainant at a great rate of speed.

Wherefore, defendant prays that the amended bill of complaint herein be dismissed and that defendant be allowed its costs herein expended.

THE CITY OF OMAHA,
Defendant,
By HARRY E. BURNAM,
I. J. DUNN,
JOHN A. RINE,
Its Attorneys.

Endorsed: Filed Aug. 1, 1910. Geo. H. Thummel, Clerk.

28 Thereupon afterwards, to-wit: On the 18th day of October, 1910 Transcript of Testimony taken on behalf of Complainant and Respondent, before Chas. W. Pearsall, Examiner in Chancery, was filed in said case, which said Transcript is in words and figures following, to-wit:

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

No. 5, Doc. "Z."

MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
CITY OF OMAHA, Respondent.

Testimony taken on behalf of complainant and respondent in the above entitled cause, under the 67th rule of the Supreme Court, as amended, pursuant to agreement of parties hereto, and before Charles W. Pearsall, Examiner in Chancery of said court, at the office of the City Attorney in the City Hall Building, in the City of Omaha, County of Douglas, in the State of Nebraska, beginning at the hour of 10 o'clock A. M. on the 8th day of September, 1910.

It Is Hereby stipulated and agreed that the testimony may be taken in short hand by Charles W. Pearsall, the Examiner before whom this testimony is being taken, and may by him be extended into a long hand transcript.

Is Is Further Agreed that the signature of the witnesses to each of their respective depositions be waived.

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

No. 5, Doc. "Z."

MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
CITY OF OMAHA, Respondent.

Testimony on Behalf of Complainant.

Appearances:

For the Complainant, Francis A. Brogan, Esq.
For the Respondent, I. J. Dunn, Esq., Harry E. Burnham, Esq.

It is admitted by both parties that the complainant is a corporation, and was at all times referred to in the pleadings, having been organized under the laws of the State of Missouri, and is a citizen and resident of the State of Missouri.

It is also admitted that the complainant owns, and for a number of years has operated a railroad from the City of St. Louis, in the State of Missouri, into and through the States of Missouri,
29 Kansas and Nebraska, and into and through the City of Omaha, including a line of railroad crossing Dodge street in the City of Omaha at about forty fifth street.

GEORGE W. CRAIG is here called and swor nas a witness on the part of complainant. Being examined in chief by Mr. BROGAN he testified as follows:

Q. Where do you reside, Mr. Craig?
A. In the City of Omaha.
Q. What is your official position in the City of Omaha?
A. City Engineer.
Q. How long have you been City Engineer?
A. Oh, for a year and a half.
Q. Were you City Engineer during all the year 1909?
A. No I was not.
Q. Just state the beginning of your term?
A. I became City Engineer on the 24th day of May, 1909.
[*W.*] Will you produce the original plans prepared in your office for the construction of the viaduct on Dodge Street at about forty fifth street, over the Missouri Pacific Railway Company's line of railroad at that point?
A. Yes sir.
Q. Handing you this blue-print, or plans, marked "Dodge Street Viaduct, Alternate plans to accompany original plan, Revised March, 1909," I will ask you to state whether or not that is the blue-print of the plan in question?
A. It is.
Q. On this it is stated that it is an alternate plan to accompany the original plan—to what does that refer, Mr. Craig?
A. There were two plans gotten out for a viaduct, and the one I have before me is the plan that was decided upon by the City Council and approved by them as such.
Q. Well, did this plan, which I now show you and which you say was approved by the City Council, supersede all other plans and become the only plan in your office for the construction of that viaduct?
A. Yes sir.
Q. Will you produce the original 1908 specifications referred to on the face of these plans, as they existed at the time they made up the specifications, of 1908?
A. Yes sir.
Q. Are these specifications, which you have produced, the original specifications of 1908, referred to on the plans?
A. They are.
Q. This paper that you hand me is marked "Revised 1909," are the revisions of 1909 carried into these specifications which I now have?
A. Yes sir.
Q. Well then, are you able to separate the specifications as they existed in 1908 before the revision, from the revised portions?
A. No sir, I am not.
30 Q. Well, are you able to produce the original 1908 specifications as they existed in that year?
A. I couldn't tell you that—I wasn't City Engineer at that time.
Q. What employé of your office was in there in 1908 who is still

in the employ of the office, who would be able to furnish the information?

A. Mr. E. E. Larkins was an employé of the office at that time.

Witness excused temporarily.

Mr. E. E. LARKINS is here called and sworn as a witness on the part of the complainant. Being examined in chief by Mr. BROGAN, he testified as follows:

Q. What is your official position or employment?
A. I am an Engineer in the City Engineer's office.
Q. Of the City of Omaha?
A. Yes sir.
Q. How long have you held that position?
A. Since the first of April, 1908 I think it was.
Q. And do you hold it up to the present time?
A. Yes sir.
Q. Under whom did you hold the position when you first went in?
A. Mr. Rosewater.
Q. How long were you in this position under Mr. Rosewater?
A. Well, from the time—I don't believe I just understand your question quite.
Q. How long did you serve under Mr. Rosewater?
A. From the time of my employment until his death.
Q. When was that—can you fix the date?
A. He died along in April, about a month before Mr. Craig came in I know.
Q. April, 1909?
A. Yes sir. I was in but not under him.
Q. Was he immediately succeeded by Mr. Craig, the present City Engineer, or was there an interval filled by another appointment?
A. An interval filled by Mr. Averigg.
Q. After Mr. Averigg's time Mr. Craig became City Engineer?
A. Yes sir.
Q. What are your duties, or have been your duties while you have been in the employ of the City Engineer's office?
A. I got out these bridge plans and worked up these original specifications.

31 Q. Now, handing you the blue print of the plans for the Dodge Street Viaduct that has just been identified by Mr. Craig, I ask you to state whether or not you helped to prepare that?
A. I did.
Q. Can you tell what is meant by the reference on these plans, as follows: "Dodge Street Viaduct, Alternate Plan to Accompany Original Plan, revised March, 1909"?
A. This was the original plan.
Q. Are you producing the original plan referred to in that reference?
A. Yes sir I am.
Q. Now this paper that you produce here, the original plan of the Dodge Street Viaduct, marked "Dodge Street Viaduct, Plan of loca-

tion and type of construction, February 1909, Revised March 1909"——

Mr. DUNN: The respondents object to the consideration of any alleged plan for the construction of the Viaduct in question, excepting the plan approved by the Mayor and City Council, for the reason that no other plan can have any bearing upon this controversy.

Q. That is the original plan?
A. Yes sir.
Q. Well then, Mr. Witness, when this alternate plan says that it is to accompany the original plan, can you explain just what that means?
A. It means that this was the original plan that was gotten out, and then it was revised, and then this alternate — was gotten up on top of that, and the two of them I turned over to Mr. Ayerigg, and, as I understand it, he turned them both in to the Council, and I understand that this was adopted by the Council.
Q. Was it your understanding that each plan was complete in itself, or that one supplemented and added to the other?
A. As far as the ground goes, for either plan to cover, they are, either one of them, a complete plan.
Q. But in order to interpret the alternate plan would it be necessary to refer to the original plan in any way?
A. Well, it would, as far as the width of roadway goes.
Q. Well now, will you point out whether or not in any other respect it would be necessary to refer to the original plan in order to understand the alternate plan that was presented and approved?
A. Well, they probably would for the location of it on the street. You see it is set over on one side.
Q. Well, is there anything on the alternate plan to correspond to the plan and alignment and scale shown here on this original plan, Mr. Witness, and the figure on the original plan marked "Typical Girder Construction", with its scale is there anything to correspond with that?

32 Mr. DUNN: Respondents object to that as immaterial, the so-called original plan, referred to by Counsel being in no way connected with the construction or the requirement to construct the proposed Viaduct, and not having, apparently, been either considered, accepted or approved by the Mayor or City Council.

A. No sir.
Q. Well then, in interpreting the specification—the subsequent alternate plan, would it be necessary to refer back to the original plan in order to get that detail?
A. It would, as far as the width of roadway goes, the location of the bridge on the street.
Q. How about this girder construction?
A. That hasn't anything to do with the detailed design of the bridge.
Q. What was its purpose on the original plan?
A. To give to the Council a picture of the general lay-out, of about

how the bridge would look as far as the roadway goes; but that is simply a side view of this and amounts to nothing at all as far as the——

Q. Well then how about this cross-section of roadway and the explanations and dimensions attached to that—for what purpose was that inserted in the original?

A. The cross-section describes the width of roadway required, and the width of side-walks required, and the kind of pavement to be used on the roadway.

Q. Then if you take the original plan and omit from it those two or three figures in the lower half, one marked "Plan of Alignment of the typical girder construction" and the other marked "Cross-Section of Roadway", in what respect does the subsequent alternate plan differ from the other portion of the plan?

A. Cutting off the bottom portion of the drawing you mean?

Q. Yes, confining yourself to the upper portion, in what respect do these two differ?

A. It differs in regard to the length of the viaduct on the east end of it.

Q. In any other respect?

A. And also, naturally, to the height of it.

Q. Makes a difference in the height?

A. Yes.

Q. Now, it is your interpretation of these plans, is it, that by the adoption of the subsequent alternate plan the earlier plan was abandoned altogether, except as it was carried into the subsequent alternate plan?

33 A. Well, it was abandoned with the exception of an extending of the width of roadway and sidewalks and the location of it on the street.

Q. Well, the location of it has to be indicated by the Ordinance, but isn't the width of the roadway shown in the subsequent alternate plan that was finally adopted?

A. It is not shown on this drawing, any more than on the scale of the drawing itself.

Q. It is not marked there?

A. It is not marked.

Q. In order to determine that you would have to have reference to the original plan?

A. Yes.

Q. Now can you produce the original 1908 specifications for bridge and viaducts (handing the witness a paper)?

A. This is it.

Q. Now, the paper you have produced here with the signature of Andrew Rosewater, City Engineer, June 9th 1908, and marked "Filed", by the City Clerk, "June 9th, 1908," were the original and official specifications of 1908?

A. Well, that copy there didn't apply to the Dodge Street viaduct.

Mr. BROGAN: Complainant asks that this answer be stricken out as not responsive.

Mr. DUNN: Mr. Larkins, just answer the question, are they or are they not.

Q. Are they what they say they are?
A. They are.
Q. When was the revision of these specifications, which is called the revision of 1909, prepared, and when was it completed, if you know?
A. These were revised in December, 1909.
Q. When you say "revised", at that time, do you mean the revision was prepared by the employés of the Engineer's Office?
A. Yes, sir.
Q. Do you know when it was presented to the Council and approved by it?
A. No sir, I do not.
Q. That would be shown in the records of the City Clerk would it not?
A. I think so.
Q. Is there anything in the Engineer's Office to show when the revision of 1909 was approved by the City Council?
A. Yes, sir.
Q. Well now, I will ask you to produce the approved copy of the specifications for bridge and highway, for 1908, as revised in 1909—is this it? (Referring to paper.)
A. Yes sir.
34 Q. Well then, this paper that you have just produced, and which is marked by the City Clerk "Received July 12, 1910, and presented to the City Council July 12, 1910, and approved"; is that the only revision, and the first revision of the specifications subsequent to the original 1908 specifications?
A. No sir.
Q. Where is there any other revision?
A. There was a revision made by Mr. Ayerigg in those original specifications of 1908, as regards the loadings to go upon these viaducts.
Q. Where is that revision?
A. I don't know where a copy of it is.
Q. Was there any copy of it accessible in April 1910, and on hand in the City Engineer's office?
A. That revision was incorporated in that last change.
Q. It was incorporated into the revision which was approved on July 12th, 1910?
A. Yes sir.
Q. Well, had there been any partial revision presented to the City Council for approval, prior to July 12, 1910, of the original 1908 specifications?
A. I don't know.
Q. You have no knowledge of any such action?
A. No sir.

Mr. BROGAN: Complainant now offers in evidence as its Exhibit No. 1 the original plan for the Dodge Street Viaduct, of February

1909, revised March 1909, and just identified by the Witness Larkins, and also identified by the Witness Craig.

Mr. DUNN: Respondents object to the offer for the reason that the evidence shows that the plan referred to was not the original plan, or any plan for the Dodge Street Viaduct, and has at no time been any portion of, or one of, the plans of the construction of the proposed viaduct, but was merely a proposed plan, prepared by the City Engineer and submitted to the Council, which plan was not approved by the Council, and therefore cannot be considered as evidence in this case.

NOTE.—A blue-print copy of the plan referred to, complainant's Exhibit No. 1, on the original scale, is hereto attached, marked "Complainant's Exhibit No. 1."

Mr. BROGAN: Complainant also offers in evidence, as its Exhibit No. 2, the original alternate plan of the Dodge Street Viaduct to accompany the original plan, of March 1, 1909, together with the notation on the back thereof, showing the time of filing in the office of the City Engineer, the time of its approval by the City Council, and the filing marks of the various City Officials.

35 Received without objection.

NOTE.—A blue-print copy of complainant's Exhibit No. 2, on the original scale, is hereto attached, marked "Complainant's Exhibit No. 2."

Mr. BROGAN: Complainant also offers in evidence, as its Exhibit No. 3, the original general Specifications, for steel highway bridges and viaducts, filed n the City Clerk's office on June 9th, 1908, and approved on the same date, together with all filing marks and endorsements thereon, including the approval of the City Council and Mayor, on June 12, 1908.

Mr. DUNN: The offer is objected to for the reason that there is nothing to indicate that the specifications have any relation to the question under consideration. It appears that they were not the specifications that would apply, under the ordinance, to the construction of the proposed viaduct, at the time the ordinance regarding the construction was passed by the Council and approved by the Mayor.

NOTE.—A true copy of the same marked "Complainant's Exhibit No. 3" is hereto attached.

Mr. BROGAN: Complainant also offers in evidence, as its exhibit No. 4, the general specifications for steel highway bridges and viaducts, of the City of Omaha, of 1908, revised 1909; together with the endorsements showing the filing in the office of the City Clerk on July 12, 1910, and the approval by the City Council and Acting Mayor on July 13, 1910.

Received without objection.

NOTE.—A copy of complainant's exhibit No. 4, above described, is hereto attached.

Q. Calling your attention now to the papers marked "General Specifications for Steel Highway Bridges and Viaducts, City of Omaha, May, 1908, Revision December 1909;" Does that include

the changes that you state Mr. Ayerigg made in the original 1908 specifications?

A. It does.

Q. Does it include anything else than that?

A. It does.

Q. What other changes?

A. First part of Specifications revised—about the first forty three paragraphs are revised.

Q. The first forty three paragraphs were revised?

A. Yes—partially, yes.

Q. In parts?

A. Yes.

Q. Was there any revision subsequent to that—subsequent to the forty third paragraph?

36 A. You mean thru here? (indicating).

Q. Yes, thru this other portion?

A. Not that I remember of now, without checking it up against the old one.

Q. Now, there is attached to that paper some separate sheets pasted into the cover, relating to separate viaducts, the first one being Bancroft Street Viaduct and another Locust Street Viaduct, and another one Dodge Street Viaduct and an Eighteenth Street Viaduct; do you know when those were prepared and inserted into this paper?

A. Those were prepared for office information and just inserted into this copy?

Q. Now they are no part of the original specifications, as prepared to be a part of the record of the City Engineer's office for presentation to the City Council for approval?

Mr. DUNN: You are referring to those things that you find pasted into this copy?

Mr. BROGAN: Yes.

A. No.

Q. Then as I understand you, they were simply attached there for convenience, so as to be easily referred to by the City Engineer's Office?

A. Yes sir, they were simply for the information of the City Engineer's office.

Q. Not put in there as a part of the records of the office?

A. No sir.

Q. When were they inserted?

A. Well, most of them were inserted around the time of the submission of the plans that they were estimates of, from the Council.

Q. Were they put in in the order in which they are found pasted in here?

A. Well, I couldn't say as to that.

Q. Now, this document that we have just been discussing, bears no official filing mark or endorsement; what is the fact about that?

A. It is simply an office copy?

Q. Well, where is the original—or is there any original of which this is simply an office copy?

A. That approved plan of 1910 is supposed to be an exact duplicate of this specification.

Q. Then this document that we have just been examining is an unofficial office copy used in the drafting room, for the convenience of employés?

A. Yes sir.

Q. And not a part of the records of the City Engineer's Office?

A. No sir.

37 Q. And your understanding is that this paper that we have just been discussing, this unofficial copy, was the one whose terms were subsequently approved on July 12, 1910?

A. Yes sir.

Q. And there is not now in the office of the City Engineer any approved specifications between the 1908 specifications that have been offered in evidence and the specifications approved July 12, 1910, that have been offered?

A. Not that I know of.

Mr. BROGAN: Complainant offers in evidence, as its Exhibit No. 5 the unofficial and unapproved copy of General Specifications produced here by this witness and identified by him, marked "General Specifications for steel highway and bridges and viaducts, City of Omaha, 1908; Revised 1909;" Not including the copies of preliminary estimates for various viaducts which were attached for convenience, as stated by the witness, but including only that portion which purports to be specifications.

Mr. DUNN: Respondents object to the offer for the reason that there is nothing to indicate that the so-called Specifications offered in evidence are official, or have been approved by the Mayor and City Council, or have any relation to the Specifications under which the complainant is required to construct the viaduct; it appearing from the ordinance enacted by the Mayor and City Council that the complainant is required to construct a viaduct according to plans and specifications prepared and submitted to the City Council under Resolution 344, approved February 1, 1909; and it does not appear that the specifications, or alleged copy of specifications, offered in evidence, are the same.

NOTE.—A copy of said Specifications marked "Complainant's Exhibit No. 5 is hereto attached.

Witness excused.

C. E. SMITH is here called and sworn as a witness on the part of complainant. Being examined in chief by Mr. BROGAN he testified as follows:

Q. What is your name?

A. C. E. Smith.

Q. Where do you reside?

A. Webster Grove, Missouri.

Q. Is that a suburb of the City of St. Louis?

A. It is a suburb of the City of St. Louis.

Q. What is your official position with the Missouri Pacific Railway Company?

A. Bridge Engineer.

38 Q. How long have you served in that capacity?

A. Since September 1st, 1909.

Q. What is your profession, Mr. Smith?

A. Civil Engineer.

Q. How long have you been engaged in that occupation?

A. For about twelve years.

Q. State in a general way what preparation you made for serving in that profession?

A. I pursued a course in Civil Engineering at the Massachusetts Institute of Technology, and graduated from there in the year 1900, having, during my course, dropped out on occasions for the purpose of obtaining some practical experience, of which I had about two years before graduation. My course consisted largely of bridge engineering, which I followed more closely than any other branch of Civil Engineering after graduation.

Q. Just state in a general way what experience you have had in your profession since graduation?

A. I was with the New York, New Haven and Hartford Railroad Company, at New Haven Connecticut, for about three years; first as Bridge Draftsman, and later as Bridge Designer. I was with the Lake Shore & Michigan Southern Railroad Company at Cleveland, Ohio, as Assistant Bridge Engineer for one year on construction and maintenance of bridge work. I was with the International Correspondence School, at Scanton, Pennsylvania for about two years and while there wrote a course of about 1500 printed pages for the instruction of students in bridge designing and engineering. I have been with the Missouri Pacific Railway Company somewhat over three years, engaged in bridge work, and on September 1st, 1909 was appointed to the position of Bridge Engineer in charge of all bridge work performed by the Maintenance of Way Department.

Q. You may state whether or not it is part of your duties, in your present position to have charge of the construction of bridges and viaducts, either built for the use of the railway itself, or for the purpose of carrying traffic over the railroad?

A. It is, in all cases where the railroad company is called upon to make expenditures; where viaducts are built at the expense of other people I am called upon to approve the plans.

Q. But where the Missouri Pacific Railway Company itself expends the money do you have charge of all of such construction?

A. Yes sir.

Q. As engineer in charge?

A. Yes sir.

Q. You may state whether or not you received, in the course of of your duties as such Bridge Engineer, a copy of Ordinance No. 7072, requiring the Missouri Pacific Railway Company to

39 contsruct a viaduct over its railroad crossing Dodge Street near Forty Fifth Street in the City of Omaha, and if you say

you did, about when did you receive a copy after its final approval on April 4, 1910?

A. I received a copy in my office in St. Louis about the middle of April, 1910.

Q. Now, after receiving that copy did you have charge of that matter so far as it concerned the Missouri Pacific Railway Company?

A. Yes sir, so far as the Engineering features were concerned.

Q. Engineering features I mean?

A. Yes sir.

Q. Did you receive any other papers relating to the matter except a copy of Ordinance No. 7072, and did you receive in St. Louis, and at the time you received that ordinance, any copy of plans and specifications?

A. No sir, I did not.

Q. What steps did you take to ascertain the nature of the plans and specifications referred to in that ordinance?

A. I came to Omaha to see if I could secure them; my object being that I read in the Ordinance that it was required that erection and construction be commenced not later than May 1st, which was about two weeks after the Ordinance reached me. It was my principal desire then to obtain a copy of the specifications and plans in order to be informed as soon as possible. With that in view I came to Omaha and was here April 22nd.

Q. Did you apply to the City Engineer, Mr. Craig, for the plans and specifications and information in relation thereto?

A. As I came into the building I came into the City Clerk's office and made the request, and was referred to the City Engineer's office for the information. I went to the City Engineer's office and was informed that Mr. Craig was out of town, and was referred to Mr. Peterson, to whom I made known my desires.

Q. What position was Mr. Peterson occupying, if you know?

A. I don't know, except that he was an assistant to Mr. Craig—in what capacity I am not informed.

Q. Now I wish you would state just what request, if any, you made of Mr. Peterson, and how it was complied with.

A. I told Mr. Peterson I had been referred to the City Engineer's office for the plans and specifications for the Dodge Street viaduct. I further told him I had been informed by Mr. Craig's stenographer that he was out of town and I asked him if he could get me a copy of the specifications—give me a copy that day of the specifications and plans. He said he could give me a copy of the plans, and he so arranged.

Q. Tell about the specifications.

A. He stated that he had no copy of the specifications that he could give me, but that he would either have a copy made and sent to me later, or that I could then peruse the specifications in the office. I told him that since the time was so short—the date was so near on which construction must commence—that I thought it would be best if I sat down in the office and went over these specifications. He went to the vault and got out a set of specifications which he handed me. I sat down and made some notes and perused these specifications in full.

Q. Now did he give you blue print copies of the plans at that time?

A. Yes sir.

Q. I am not sure that I have the exact prints. That is one print (indicating) and this was another (indicating).

Q. Now referring first to the blue print or plan marked "Dodge Street Viaduct", "plan of construction and type of construction February 1909, revised March 1909", the original of which has already been offered in evidence, as complainant's exhibit No. 1; I will ask you to state whether this copy which you now produce was furnished you at that time by Mr. Peterson from the City Engineer's office in response to your request for the plans of the viaduct.

Mr. DUNN: That is objected to as incompetent, immaterial, and not bearing upon the issues in this case.

Q. Did Mr. Peterson at that time furnish you with a further plan in addition to the one I have just identified?

A. He furnished me with another plan entitled "Dodge Street Viaduct, alternate plan to accompany original plan, revised March 1909."

Q. Is that the blue print copy of the original which has been offered in evidence here as exhibit No. 2?

A. From a cursory examination it is. I saw the two together.

Q. Well just let's lay the two together and see whether one is a blue print copy of the other—you can easily settle that.

A. Yes it is.

Q. Now is it a fact that the copy of the alternative plans furnished to you is a true blue print copy of the original plan that has been offered in evidence as exhibit No. 2?

A. It is.

Q. Calling your attention then to Exhibit No. 1, I will ask you to state whether or not the blue print copy of the original plan of Dodge Stret Viaduct, of February 1909, revised March 1909, is a true blue print copy of the original exhibit?

A. It is.

Q. What did Mr. Peterson say to you about these two plans when he gave them to you?

Mr. DUNN: That is objected to as immaterial and highly incompetent, as Mr. Peterson had no authority apparently, and
41 was not authorized to either give instructions or in any way change the requirement made by the Mayor and City Council, by ordinance, as to the construction of the viaduct.

A. I do not remember that Mr. Peterson said anything in particular in relation to these plans?

Q. What I mean is, did he tell you what they were when he gave them to you?

A. He did not explain them in detail, but in reply to my request he furnished me these two blue prints.

Q. You may state whether or not he furnished them to you

in response to your request for the plans of the proposed Dodge Street Viaduct?

A. Yes he did.

Q. Now, Mr. Smith, when you took these two copies of plans, you may state whether or not you understood from the fact that they furnished to you, and the manner in which they were furnished to you, that the one was intended to supplement the other?

A. I did so understand it at first on account of the fact that the smaller plan marked "Dodge Street Viaduct, alternate plan to accompany original plan" shows that that plan is not complete; and the further fact that there are views shown on the other print not shown on the alternate plan to accompany original plan. Further, the alternate plan is not complete insofar as it does not show the width of roadway or sidewalks required, nor the location of the viaduct within the Street, and it would have been impossible with that plan alone to have erected the viaduct or to have proper detailed plans without further information. The further information was given on the other blue print.

Q. I will ask you to state, Mr. Smith, what in your judgment as a civil engineer, would be a proper interpretation of these two plans when furnished together, in that manner, as to whether the smaller one should be accepted as a complete plan or not.

A. It would be my understanding that the smaller plan was intended to be an alternate plan for the two views shown in the upper portion of the larger plan. The alternate shows revised views of elevation and profile, and plan and alignment, which are shown on the larger plan. Three views shown at the bottom of the larger plan were not repeated on the alternate plan. I presume, and I think that I am justified in saying, that any civil engineer would presume that they were omitted from the alternate plan, for the reason that no revision of those views was contemplated, but it was still intended to use the larger plan for the information given by that.

Q. Now Mr. Smith, you have stated that Mr. Peterson referred you to some specifications in the office of the City Engineer,
42 and allowed you to check them over there, but did not furnish you at that time a copy of that, I will hand you this paper which has already been offered in evidence as exhibit No. 5 and ask you to state whether or not that was the document which was shown to you by Mr. Peterson at that time?

A. To the best of my knowledge it is.

Q. So far as you know, Mr. Smith, and so far as the matter came under your action as the engineer of the railroad company, did the City of Omaha, through its city engineer or otherwise, ever furnish to the Missouri Pacific Railway Company copies of specifications to be followed in the construction of the Dodge Street viaduct?

A. To my knowledge they were never furnished.

Q. Now I will ask you to state whether you checked over these two copies of plans and these unofficial specifications shown you by Mr. Peterson, and made an investigation of them, with reference to the possibility of constructing a viaduct under their provisions?

A. I did look them over.

Q. I will ask you, in the first place to state whether those two plans when construed together, or the second alternate plan taken alone, and the general specifications shown you by Mr. Peterson at that time, were sufficiently specific to enable the construction of a viaduct to be made under their provisions?

A. I have already said that that second plan taken alone was not sufficiently complete to permit this to be done. That answers one portion of the question.

Mr. DUNN: I move to strike that out as not responsive to the question.

A. (Cont.) Both plans taken together, together with the specifications, were not sufficiently complete or in detail to enable the provisions of the ordinance to be carried out, which required erection and construction to commence not later than May 1st.

Mr. DUNN: Respondents move to strike out the last portion of the answer as not being at all responsive to the question, but being an answer to an entirely different question which we think is improper, and we move to strike the answer out for that reason.

Q. Now, Mr. Smith, under both plans and specifications shown you, as I understand you, it would have been possible to have built a viaduct of some kind, if given sufficient time to prepare for it; is that what you mean?

A. If given sufficient time to prepare detail plans from those general plans.

43 Q. Would it have been possible, from the fourth day of April, 1910, to the first day of May, 1910, to have prepared detail plans so as to commence the actual construction of the viaduct on the first day of May, 1910?

A. No.

Q. Would it have been possible for the Missouri Pacific Railway Company to have taken bids and let a contract, if it had desired to proceed in that manner on the two plans, or either of them, with the specifications furnished you by Mr. Peterson at that time?

A. It would have been possible, but not prior to May first.

Q. My question is, would it have been possible at any time to have taken those things and have submitted them to bidders just as they stand, to build a viaduct under those provisions?

A. Yes.

Q. In order to do that what would it have been necessary for the bidder to do?

A. It would have been necessary for the bidder prior to submitting his bid to go into a number of features relating to the details of design in order that he might intelligently know what he would be called upon to do, those details not being indicated on the drawings.

Q. Now, Mr. Smith, it is customary, is it not, in work of this kind, before beginning to work or letting the contract or ordering the material to prepare these detail plans in order to know all the particulars of the construction?

A. Yes it is customary for the reason that when it is handled otherwise the contractor must of necessity, on account of bidding on a proposition in which there are many uncertainties, add on a much larger percentage for unknown contingencies, thereby resulting in larger cost. If the details are worked out reasonably full in advance a more favorable bid is obtained from the contractor and fewer questions arise during construction requiring adjudication.

Q. Can you obtain the same competition in bidding where you are obliged to call for bids on such plans and specifications as are shown here?

A. Theoretically, yes, but practically no, because there would be fewer contractors who would be willing, and who, perhaps, would have the organization and the time to take up the matter of preparation of the detail plans.

Q. As a matter of fact the Missouri Pacific Railway Company, in building a viaduct of this kind, would do its own work, and not do it by contract?

A. Well we would contract it.

Q. You would contract it?

A. Yes in separate contracts.

Q. It would let the contract for different portions, of the work to different contractors?

44 A. Yes to different contractors.

Q. And before doing that it would prepare its own detail specifications, and call for bids on that?

A. Yes sir.

Q. Now, in your judgment, how much time would be reasonably necessary, from the time you examined these plans and specifications, to prepare the necessary details to call for bids?

A. That can hardly be done in less than two months, under the best handling.

Q. And after that was done how much time would be reasonably necessary, in the ordinary course of business, to let the various contracts and begin assembling material and constructing the viaduct?

A. It would require about three weeks to get the bids in and make the award; approximately two weeks more for the contractor to get his equipment on the ground, and it is doubtful if he could, in that length of time have material to go ahead with the work. It would probably be two months after the bids were in before the actual work could commence on the foundations. The steel work would require about three months longer before it all would be made.

Q. And what time, from the time you would begin the work of preparing detail specifications, and assuming that it proceeded with reasonable promptness in the manner you have indicated, would be reasonably required to complete the construction of such a viaduct as was indicated by these plans and specifications?

A. About six months. I would like to make a reservation on that six months in this way: It is possible to offer bonuses to the contractors and the steel mills to make special efforts and take very special precautions, costing more money, to get quicker action. How much quicker that action would be would depend on how far that special handling went.

Q. But if you didn't offer such bonuses, but proceeded in a reasonable and economic manner, to construct it, how long would it reasonably take?

A. The time I have given you, about six months.

Q. I wish you would state to the Examiner, the length of the viaduct as required by the alternate plans?

A. The plan shows the length of steel work 670 feet; length of masonry 140 feet, making a total length of 810 feet.

Q. And what height is indicated by the plans at the highest point of the viaduct, meaning by height the distance from the street level?

A. The highest point, as shown over the tracks of the railway company, the distance being 28.95 feet, practically 29 feet from the surface of floor to surface of street. I take back that 28.95; I see here it is exactly 29 feet at the center.

45 Q. What are the various widths of the roadway, sidewalks on the structure?

A. They are not shown on the alternate plan, but they are shown on the plan or larger print referred to in the alternate plan as the original plan. In that original plan the width of roadway is shown as 35 feet with two sidewalks each of which is six feet wide, making a total width between fence rails of 47 feet.

Q. What is the depth of floor indicated on the plans?

A. The depth is not given in figures, as a dimension specifically referring to that depth, but it can be arrived at by certain dimensions that are known. For example, we have 29 feet between surface of the floor on the viaduct and surface of street at the highest part, which is directly over the track of the Railway Company. The standard clearance from the top of rail of our tracks, to overhead obstructions is 22 feet. This leaves a depth of floor of 7 feet from surface of floor to bottom of steel work, which practically corresponds with what would be required for the type of construction shown on the original plan.

Q. What is your opinion as to whether or not that depth of floor space would be a reasonable requirement, and a proper one, for a viaduct of that character at that situation?

A. The highest point on this particular viaduct is controlled absolutely by the clearance required over the railroad track, and the depth of floor. The less depth of floor, the less will be the height of the viaduct. The depth of floor can be reduced to two feet without departing from good practice in the least degree, which would make the surface of floor twenty four feet above the rail instead of 29, as shown in the plan resulting in a lowering in the floor of 5 feet at the highest point.

Q. What would you say, Mr. Smith, as to whether or not the construction of the viaduct with a floor depth of only two feet would or would not be a departure from those plans as furnished you by the City Engineer's office?

A. It would be a departure. We could not build a viaduct with a floor depth of two feet over those tracks, and follow the plans.

Q. Could you build with any less than a depth of 7 feet, and follow the plans?

A. It is difficult to tell from the straight perusal of the plans, but it would be practically impossible. The details shown, incomplete as they are, seem to require approximately a depth of seven feet.

Q. What would be the effect on the necessary length of the viaduct of reducing the depth of the floor space and the consequent height of the viaduct structure?

46 A. The approaches of a viaduct—the length of approaches generally varies directly with the height to which it is necessary to go to get over the tracks. Assuming the same grade on the approaches as shown on these plans, the length of viaduct would be decreased considerably by lowering the summit 5 feet.

Q. Can you state about how much, retaining the same grade?

A. It would be 20-113 of 810—approximately 150 feet.

Q. Less length of viaduct?

A. Yes, sir.

Q. As a consequence of less floor depth?

A. Yes, sir.

Q. What do you say as to the length of the viaduct—that portion of it which extends eastward from the crossing over the railroad, what is the length in the first place, and what have you to say as to its being a reasonable requirement?

A. The length of the steel work in the east approach is 470 feet, and in addition there is a masonry approach which is marked 107.625 feet in length. The east approach starting a distance not shown, but apparently about 20 feet, east of the center line of the main line of the Missouri Pacific Railroad.

Q. What is the grade of the east approach as shown on the plans?

A. The grade is 3.23 for 390 feet, changing to a grade of 6.2 per cent for the remaining distance at the east end.

Q. What do you say as to whether it is a reasonable requirement to make such an extension in the length of the viaduct, and to require the construction of such a grade?

A. The grade of 3.23 per cent appears to be unnecessary for traffic conditions at that point, because the plan shows grades of 6.2 per cent at other points on the viaduct, and had a 6.2 per cent grade been used throughout the distance over which the 3.23 per cent extends, the length of the viaduct would have been decreased approximately 150 feet.

Q. What is the grade of the street shown on the plan, before the construction of the viaduct?

A. The grade of the street prior to the construction of the viaduct is not shown. There is a grade of 8 per cent shown on here.

Q. A grade of 8 per cent on the street?

A. That is a future proposed grade.

Q. What does that 8 per cent marked underneath the viaduct surface indicate?

A. It indicates the grade of the proposed roadway alongside the viaduct on the north side.

47 Q. Does it show any proposed change of the present grade or merely indicate the present grade?

A. It indicates an increase in the present grade, steepening it to 8 per cent.

Q. What in your judgment would be a sufficient grade and a sufficient length eastward from the railroad to carry the ordinary street traffic—an ordinary and reasonable grade over the railroad?

A. The grades on approaches to a viaduct generally bear some relation to grades at other points in the city; it being assumed by engineers who have viaduct construction in hand that vehicles within any city are so designed and so equipped with power that they can climb any power within that city. On that basis it is assumed that the addition of one more grade of the same steepness, or less, as at other points in the city, is no added burden. On that basis, even if the approaches of this viaduct were 8 per cent, I think it would not be unreasonable. The grades on a viaduct are also somewhat controlled by the obstructions met with on the approaches. In some cases where it is desired to get a 7 per cent grade, for example, and by the use of this grade an obstruction would be met, which would be avoided by the use of a 7.2 per cent grade, it is justifiable to use a 7.2 per cent grade.

Q. If there was an 8 per cent grade used, and a floor space of only 2 feet used, what would be the length of the viaduct east of the railroad approximately?

A. About 350 feet.

Q. And what is the present length, the length indicated in the plans?

A. 577.65 feet. Referring to the previous question: the other obstructions on the approaches can be avoided if a 7.2 per cent grade be used; we would not interfere with the present grade of Forty Sixth Street, nor to any material extent with the Saddle Creek Sewer right-of-way.

Q. What do those plans indicate, Mr. Smith, with reference to the construction of the street railway, or the erection and maintenance of a street railway on top of the viaduct after construction?

A. The alternate plan makes no reference whatever to street railway tracks. The original plan, referred to in the alternate plan, shows a double track street railway crossing the viaduct, and shows it also constructed to accommodate itself to the rails of the double track street railway.

Q. What does the plan require as to the width of roadway and sidewalk?

A. Roadway 35 feet wide, each of two sidewalks 6 feet wide, making a total width of 47 feet.

48 Q. In case no street railway track of any kind was to be constructed on top of the viaduct, would it be necessary or would it be usually or customarily required to build the roadway 35 feet wide for the purpose of carrying over a viaduct the ordinary street traffic consisting of buggies, wagons and automobiles?

A. It would not be necessary to furnish so great a width.

Q. In your judgment what width of roadway would be sufficient

and ample to take care of all the ordinary street traffic such as buggies drawn by horses, wagons of all kinds drawn by horses, automobiles and other vehicles, and matters of that kind, allowing movement in both directions with room to pass, excluding the lines of street railway?

A. It has been found that a roadway 16 feet wide is ample to give room for two lines of vehicles to move, the lines moving in opposite directions. It has also been found desirable to furnish additional space on a viaduct for vehicles moving at a different speed. A width of 24 feet between curb lines has been found ample for this purpose, and is, in my opinion, sufficient at this point.

Q. What do these plans and specifications show with reference to the drainage of the surface and the protection of the steel structure from rust?

A. The plans are incomplete in this respect. The alternate plan shows nothing; the original plans which accompany the alternate plan show an open space directly over the girders, under the curb lines, which would permit of droppings from horses and other debris on the viaduct to be blown and washed down out of the steel work directly under the girders, resulting in their rapid deterioration.

Q. What would be the result on the cost of maintaining the viaduct if built according to that plan?

A. It would be increased largely—it is difficult to put it in dollars and cents. From my experience in the construction of viaduct work where steel is used, the steel would not last any longer than if the viaduct had been composed of wood, subject to ordinary decay.

Q. What do you say as to the requirement of the specification shown to you, in regard to the manner in which the floor beams should be riveted to the posts?

A. The specifications specified that floor beams should be riveted to the posts above the pins, which referred specifically to trusses, but on the typical details shown on the original plan this principle is extended to girders. The floor beams here being shown riveted to the girders above the bottom flanges. This is the construction that results in such great depth of floor, and, while it is good
49 construction, it is also good construction to suspend the floor beams below the flanges of girders, or the trusses.

Q. How do these methods of construction compare with each other in cost?

A. So far as the actual cost of steel work is concerned there is very little difference in the cost of construction.

Q. What effect do the two methods of construction have on the height of floor?

A. Suspending the floor beams below the chords or flanges results in the least possible depth of floor. Riveting the floor beams above the chords results in the greatest depth of floor.

Q. I wish you would turn to that portion of the original specifications shown to you, which contains the record as to the specifications for the moving load, and the number of pounds per square foot required?

A. The specifications shown me read as follows: "Live Load 37—

A: A live load of 150 pounds per square foot of roadway and sidewalk."

Q. I notice in the clause of the specifications which you have just read there are some faint lead pencil interlineations reading as follows: "100 pounds per square foot," you may state whether or not you noticed that in there at the time you examined it?

A. I do not at this time remember that I noticed that at the time I examined it. And, further, with reference to this, at the time I examined it, the clause struck me as so unusual that I copied it verbatim, and my copy does not show the insertion.

Q. Now to the best of your knowledge was the interlineation in lead pencil in there at the time the specifications were shown to you?

A. It was not.

Q. What do you say as to the reasonableness of the requirement of 150 pounds per spuare foot on the roadway and sidewalks?

A. I think it is excessive.

Q. First, with reference to the roadways, assuming there would be no street car traffic on a structure of that character, what is the resisting power usually requisite and sufficient for traffic of that character, excluding street railway tracks?

A. A weight of 100 pounds per square foot on the roadway will amply provide for all loads that can come upon the viaduct. Before any such load could be reached it would be necessary to assemble on the bridge a large number of the heaviest trucks, fully loaded, that could be found in the city. The ordinary load of a crowded street, under ordinary moving vehicles, will not exceed on an
50 average *of* 25 or 30 pounds per square foot. If the vehicles are stopped and brought end to end, and drawn up side by side, sides touching, unless they consist of the very heaviest equipment picked out and selected for that purpose, the load will not exceed 75 pounds per square foot. If you take such loads as they now have in the City of New York, the most recent motor trucks, the heavy coal wagons, put on the viaduct so close together that there could be no motion, so crowded that they would practically be in contact, you would get a load of about 100 pounds per square foot on the roadway. This has no reference to special loads, what we term scattered loads. There will occasionally cross a viaduct a road roller or a traction engine, and the specification here further refers to the 15 ton road roller. In addition to the load of 100 pounds per foot, it would be desirable to design for a heavy road roller or a heavy traction engine, but it is not proper nor reasonable to assume that there will be on the viaduct what might be called a "flock" of road rollers, touching each other side to side, and touching ends to ends; nor would there be a concentration of a large number of the heaviest traction engines at one time.

Q. What about the requirement of 150 pounds per square foot on the sidewalk space, as shown in the specifications as presented to you at that time?

A. There has been a great deal of misconception as to the weight that can be brought upon a sidewalk arising out of a crowd of people. The office buildings are usually designed from 50 to 75——

Q. I think you had just better give your opinion, and answer the question, and stop. If they want to go into that on cross-examination they can do that.

A. 100 pounds would be ample.

Q. What is the ordinary pressure per square foot resulting from crowds of pedestrians on the sidewalk?

A. On the move it will not exceed 20 pounds per square foot.

Q. What do those specifications shown to you require as to the carrying of street cars on the viaduct?

A. Require that the viaduct be designed to carry two trolley cars coupled together on each track, each car weighing 35 tons, the two cars on each track to be followed and preceded by a continuous load of 1650 pounds per linear foot, over the entire length of the viaduct.

Q. Would there be any such requirement in a structure of that character unless it was designed for the carrying of street car traffic?

A. It would not.

Q. Allowing for all differences between engineers, would any engineer regard as a necessity the making of a requirement
51 of that kind unless for the purpose of carrying street car traffic?

A. No, sir.

Q. Would there be any difference of opinion on that question if the street car traffic was not intended to be run over the viaduct?

A. I think not.

Q. What do those specifications shown you provide as to increasing the strength 50 per cent over the other requirements, to provide for what is called "the effect of impact"?

A. The specification- reqquire that the stresses caused by the street cars be increased 50 percent to provide for the effect of what is termed "impact."

Q. Now what is that?

A. Impact is generally referred to as the increased stress caused by rapid vibrations of a load moving rapidly, not stopping.

At this point a recess was taken until 2:00 o'clock P. M., at which time all parties met, the witness C. E. SMITH resumed the stand, and his direct examination by Mr. BROGAN, was continued as follows:

Q. Does this element of the effect of impact arise at all in connection with ordinary vehicles?

A. No; never taken into account whatever in connection with ordinary vehicles.

Q. Is it, in connection with ordinary automobiles?

A. No sir, it is not.

Q. What about the ordinary electric cars, such as are in use in the City of Omaha?

A. It is not customary to consider it.

Q. Where does it arise, in fact?

A. Principally under locomotives; the driving wheels moving at a high speed where it is caused by the counter weight and the connecting rods on the locomotive being attached to different sides of

the wheel, and causing a sudden increase in load every time the counter weight or driving rod comes down.

Q. Is there any necessity for adding such strength to a viaduct to be constructed on Dodge Street even tho it should carry street car traffic over it?

A. I think not.

Q. And if there should be no street car traffic provided for there would be no necessity for providing for that factor?

A. No sir.

Q. What have you to say as to the requirement in the specifications for the fibre strain on timber?

A. The specifications require 1,200 pounds per square inch. The Bureau of Forestry of the United States Government issued Bulletin No. 12 in which they recommended 1,550 as a safe factor. A large amount of timber in the bridge will not be affected by the
52 change in stress. Some of it would be. It only affects it to the extent of a few hundred dollars.

Q. What do you say about the masonry?

A. The specifications call for 400 to the square inch, and it is quite customary to have a strength of five or even six hundred, resulting in smaller masonry space under the columns, and less expense for distributing the load. That is another small item; it only amounts to a hundred or two hundred dollars in the cost of the viaduct.

Q. Do you find in the plans submitted to you any plans for poles and wires for the electric cars?

A. Yes sir they show trolley poles 80 feet apart with the wires between them, and extending throughout the entire length of the viaduct.

Q. Is there anything on the face of the plans and specifications to indicate that those poles are not a part of the required structure; as much so as any other part of it?

A. There is nothing on the plans and specifications that so states.

Q. And what about the lights indicated on the plans?

A. Light poles are shown every 80 feet across the viaduct.

Q. Is there anything to indicate that those are not required to be constructed by the railroad company in the same manner as any other portion of the structure?

A. No sir there is not.

Q. What is the fact in the plans, as to the span over the tracks of the railway company?

A. The span shown in the plan, and designated as 40 feet, and the main line track is shown at the center of that span, making the bents or spans 20 feet from the center of the track on each side, leaving less than enough room for a parallel track with the standard clearance on each side. A little more study on the plan would have changed that at a little [addition] expense.

Q. And if the railroad company had proceeded to construct the viaduct in substantial conformity to the plans presented to you could it have done so and have left enough space for its sidings within the space provided for its tracks?

A. No sir.

Q. What should have been the distance left for the tracks of the company?

A. There should have been left not less than 42 feet.

Q. Was there anything in the plans or specifications shown you which would determine the character of the foundation, or the footings?

A. There was nothing.

Q. Could you construct a viaduct without information as to the material and character of the footings?

A. No.

53 Q. And conform to the plans and specifications?

A. (No answer given.)

Q. Did the specifications given to you contain specifications for a creosoted block pavement?

A. No, they did not.

Q. And was that one of the requirements shown by the plans submitted to you?

A. Yes.

Q. Would it be possible to construct a viaduct with creosoted block pavement without specifications covering that item?

A. Possible but not desirable; would get a very poor grade of pavement which would probably have to be taken up in a short time.

Q. Have you computed, and are you able to state the cost of a viaduct constructed in accordance with the plans and specifications shown to you insofar as you could have constructed a viaduct in accordance therewith?

A. I have.

Q. What is your judgment would be the actual cost of constructing such a viaduct?

A. $80,000, (eighty thousand dollars).

Q. Have you computed and are you able to state the cost of constructing the viaduct with a roadway 24 feet in width, and a length of approximately 600 feet, and fully suitable for the carrying of the ordinary street traffic, including vehicles of all kinds, and automobiles, and even such heavy trucks as might be expected to cross such a viaduct, but not including the traffic of the street railway company?

A. I have computed it.

Q. What, in your opinion, would be the cost of such a viaduct?

A. $30,000. (thirty thousand Dollars.)

Q. You may state whether or not the form of structure as you have indicated could be constructed at a cost of Thirty Thousand Dollars, would be reasonably sufficient to carry ordinary street traffic, including all kinds of vehicles that are now in use upon the streets, but not including the street railway, over and across the track of the Missouri Pacific Railway at 45th & Dodge Streets?

A. Yes it would.

Cross-examination

By Mr. DUNN:

Q. You are the same Mr. Smith, are you, who prepared and signed and swore to the affidavit heretofore filed in this case, with reference to the plans and specifications and construction of the proposed viaduct?

A. I am.

Q. Signed and sworn to on or about the 23rd day of April of this year?

A. Yes sir.

54 Q. And I will ask you to state, if you can, so I will not have to go all thru this, if the conclusions, as set forth in that affidavit, with reference to the plans and specifications and construction are substantially the same as stated by you here today, so far as that affidavit goes?

A. They are.

Q. When you made that affidavit I think you covered in detail, did you not, as you then understood it, the requirement of the city with respect to the construction of the proposed viaduct, as shown by plans and specifications?

A. I did.

Q. Now, did you have before you then, and take into consideration, the two plans, that is, what has been termed the original and alternate plans that have been offered in evidence here today?

A. I did.

Q. You based your conclusions then, and do now, upon the requirements as shown by the two plans, both entering into the requirements as to the construction of the viaduct?

A. I do.

Q. So that, as far as you are concerned you have then taken into consideration the proposed viaduct, as shown by the two plans and the specifications which you say you examined in the office of the city engineer?

A. I do.

Q. Now will you state again what time in April it was, as you recollected, that you——

A. The 22nd.

Q. That was the day then before you made and swore to your affidavit?

A. Yes sir.

Q. Was that affidavit made here in Omaha or at St. Louis?

A. No, I returned that night for- St. Louis not knowing whether we were to build or not. The next morning the legal department called me up and wanted me to execute an affidavit that day. It was dictated right off the reel then.

Q. Did you mean to say that you didn't know whether you could build this viaduct from the plans and specifications until the legal department decided it for you?

A. No I mean that I could not go ahead with the construction in the time required by the ordinance, prior to May 1st, in good faith.

Q. When you say that you didn't know whether "we," meaning the Missouri Pacific Railroad, were going to build this viaduct or not, until you received word from the legal department next morning——

A. I beg your pardon, may I interrupt?

Q. Yes.

A. There seems to be some misunderstanding——

Q. Well do you mean that you had not reached a conclusion in your own mind as to whether the company could construct
55 the viaduct from those plans and specifications, such as they required, until you heard from the legal department?

A. No, the legal department did not enter into my reckonings whatever. I have no direct connection with the legal department except through our ordinary organization, and their calling me up was out of order and to save time. The regular course would have been a report to my immediate superior with their request for instructions.

Q. But can you tell from whom the legal department got the information and upon what the legal department based its conclusion that the company could not construct this viaduct before hearing from you, upon the plans and specifications, so far as that part of it was concerned?

A. I can give you what I presume was their reason, not having seen any correspondence in their files as to what guided them.

Q. I don't care for you to go into that particularly.

A. I can tell you what I think moved them.

Q. Did you, before the legal department called you up and asked you to give an affidavit, report to the legal department, or any other department, that it would be a practical impossibility to build a viaduct upon the plans and specifications as adopted by the Mayor and City Council?

A. Immediately upon receipt of a copy of the ordinance, not accompanied by the plans and specifications, I had gone to the office of the Vice President who controls expenditures, with request for information as to what action was desired to be taken. We went over the ordinance together and came to the May 1st provision, and decided right there that it would be impossible to comply with that particular ordinance. My instructions were to go to Omaha and get a copy of the plans and specifications, if possible, and come back to St. Louis and make a report. That I did as soon as I could. In fact this all consumed a very short time. I was in Omaha on the 22nd and back in St. Louis on the 23rd. On the 23rd I was engaged in making a report to my superiors. While engaged in the preparation of that report the legal department called me up and asked me for the affidavit.

Q. But the legal department had already filed a petition asking an injunction restraining the City, before the 22nd hadn't it?

A. I don't know.

Q. Well, all I want to get at, in particular, is that you hadn't made any report to the legal department, or to anybody else, upon what

you considered the lack of specific information in the plans and specifications, at the time you were called upon by the legal department to make the affidavit, had you?

A. Not prior to that, no.

56 Q. So that the legal department did not get from you any information upon which to base this suit, that the plan could not be carried out except insofar as you reached the conclusion that you could not begin the construction by May 1st.

A. Could not begin the construction by May 1st.

Q. Now then, you did return, you say, to St. Louis, on the 23rd, and did you again go over the matter with the Vice President, or did you notify the legal department that you were ready to report.

A. No sir.

Q. Do you know how the legal department knew, or if they did know, that you had information and were ready to make an affidavit?

A. I presume, by the fact that they had a copy of the ordinance in their office marked up for action before May 1st.

Q. Do you know from whom they found out that you could make an affidavit favorable to the company's side of it, or did they simply presume it?

A. I don't know.

Q. They called upon you to make an affidavit?

A. Yes, as to any points in regard to which the plans and specifications were unreasonable to such an extent as to cause more expense to the company than was necessary.

Q. But you hadn't reported to any body up to the time you were called upon by the legal department to do that, that there were any points in the plans and specifications that would require more expensive construction [then] was necessary.

A. No sir, but presumably they did not know that; and if there were no such points it would have been my duty to have told them I could not make the affidavit.

Q. As a matter of fact the suit had been commenced before that?

A. I don't know that; I don't know what action the office of the Vice President takes before calling on the subordinates for detailed information. I think general policy perhaps controls that.

Q. Now, Mr. Smith, what material difference, if any, do you find between the specifications that have been called to your attention and that have been offered in evidence barring the approval of 1910, and the specifications which you say were exhibited to you by Mr. Peterson, when you visited the office of the engineer in April 1910.

A. I am not prepared to answer that question in detail, because I see these now for the first time today, and in order to get a detailed answer to your question it would be necessary for me to sit down and proof-read. Off hand I see no material differences.

Q. Have you examined the general specifications for the construction of viaducts, on file in the office of the city engineer and approved by the Mayor and City Council in the year of 1908, which have been heretofore presented to you.

57 A. No I have not.

Q. Were those specifications called to your attention, or exhibited or given to you in the office of the city engineer, when you were here in April, on April the 22nd of this year?

A. I do not recall them.

Q. So you can't say now to what extent those specifications differ from the specifications which you say were exhibited to you by Mr. Peterson on that date?

A. I cannot.

Q. You, however, accepted the statement at that time that the specifications that were handed to you were the ones that would control in the construction of the viaduct, and it has been those specifications upon which you based your conclusions, is that correct?

A. I do not remember any statement to that effect, but I presume the mere handing of those specifications to me indicated that they were the specifications.

Q. You went in there and called for the specifications adopted by the City, under which your company was required to construct the viaduct?

A. Yes sir.

Q. And you were given those?

A. Yes sir.

Q. And no others so far as you recollect?

A. No others so far as I recollect.

Q. And you examined and took notes of those with the understanding that they were the specifications under which you would be expected to construct the viaduct?

A. Yes sir.

Q. And your objections to the viaduct were based upon the assumption that those plans that you examined were the plans under which you were to construct?

A. Yes sir.

Q. Now, you received the ordinance, you say, direct from the Vice President of the company?

A. All of my papers come from the office of the chief engineer of maintenance of way, and it was presumably handed to him by the general manager's office, to whom he reports, and all papers come to me through that way for handling.

Q. And that was just prior, you say, to the date when you came to Omaha?

A. Yes sir, a very short time. All the events took place within a short period.

Q. Did you ask the city engineer, or the person you consulted, to furnish you a copy of those specifications, in addition to the examination you had made?

A. No, I asked that morning if I could get a set to take with me; I had to make a report the next day; and I couldn't get them, and I knew that a set sent to me the following week would come after my report had been made and would be of no value to me. All I

tried to do was to go through the specifications and pick out the points that stood out.

Q. You got blue prints on that day that were furnished with the plans?

A. Yes sir.

58 Q. Now I understand you to say that the last plan, or the alternate plan, in your judgment is not complete within itself without consulting the first plan; that is, that the other plan, the first or original plan, shows views that the approved plan does not show?

A. That is correct.

Q. And you mean that taking the so-called alternate plan you could not, without consulting the other plan, determine what you were required to do in the way of constructing a viaduct, I mean considering that plan with the specifications?

A. No sir.

Q. And will you just state again now, briefly, the two or three propositions that you say the alternate plan lacks—I think one referred to the width of the road-way.

A. The so-called alternate plan lacks width of roadway, width of sidewalks and location of the viaduct with reference to the proper lines.

Q. Do the specifications refer to the width of sidewalk or roadway?

A. Not to my knowledge.

Q. And what else do you say was shown on the original plan, and essential to the construction of the viaduct, that could not be determined from the second or alternate plan?

A. The typical construction is not shown on the alternate plan.

Q. May I ask what you mean by typical construction?

A. The type of construction that was desired to be used. The three items are the cross-section showing the width of roadway and width of sidewalks shown on the original plan not shown on the alternate plan; cross-section showing the location on the street, shown on the original plan, not shown on the alternate plan; the type of construction, shown on the original plan, not shown on the alternate plan; which would lead an engineer to believe that this alternate plan was alternate to so much of the original plan as it could replace; could be used in connection with the remainder.

Q. In other words, this plan here, this so-called alternate plan, shows an extension of the viaduct on the east end about 210 feet, does it not?

A. Approximately somewhat less than that, 115 feet as this works out.

Q. And outside of that it fits in and may be properly considered a part of the original plan, or supplemental thereto?

A. Yes.

Q. From an engineering standpoint?

A. Yes.

Q. What did you mean by the statement, if I have it correct, that the two plans and the specifications were not sufficient to enable your company to build the viaduct on time?

59 A. Because the amount of additional information that would be necessary to secure with reference to details of construction would more than consume the time between the approval of the ordinance and the time set for the day of commencement of construction.

Q. I think you said, Mr. Smith, that it would take about two months to prepare detail plans and specifications from those plans and specifications in order to put you in a position to call for bids to the best advantage, in your judgment?

A. That is correct, if handled in the ordinary way.

Q. And I understood you to say that it would take about six months from that time to complete the viaduct, or was there some other time in addition thereto that you considered necessary?

A. I think I recollect that there was another month in there for securing bids and awarding the contract, and assembling the material, and then a period of about six months to complete construction.

Q. Then, as a matter of fact, you were giving about eight months from the time you were to begin construction and the date you were to complete it?

A. Yes.

Q. You think that you had commenced at once to prepare detail plans and specifications, and then proceeded to get your bids that it would have taken a month longer anyway?

A. As we read the ordinance we would not be in condition to commence erection and construction until three months after May first, the time set for commencement.

Q. You would have been in condition to commence preparation of your detail plans, and then call for your bids when you got your plans finished, and then finally let your contract after you got your bids?

A. Yes, we would have been in condition to start detail plans about May first. The ordinance did not reach me until the middle of April or a little later—I don't remember the dates. The fact that I didn't get here until April 22 shows that I was given it late in April, it was handled quickly. It would have been necessary for me to come here and consult the city engineer relative to a number of points in the specifications which appeared to be doubtful. We did not have any specifications at that time. I could have started on our plans about May first.

Q. That is from April 20 to May 1st you would have considered necessary to have put in that time consulting the engineer and looking after other preliminary matters before actually beginning the plans and specifications?

A. Yes sir.

Q. So that would have taken ten days more?

A. At least.

60 Q. So then, according to your information, as you now seem to have it, it would probably have taken forty days more than the city gave you under the ordinance to finally complete the construction of the viaduct had you concluded to go ahead?

A. Presumably so, yes sir.

Q. But you did not at any time consider the preparation of detail plans and specifications or make any provision or preparation to begin such work did you?

A. I had considered them in my mind to the extent of having studied them occasionally a number of times in advance, while the matter was in the preliminary stage, thinking that when the matter did come up to a final point that I would be called upon to act quickly. I was in possession of a good deal of local information with reference to the subject. I did, so far, consider the preparation of detail plans.

Q. But did you ever begin, or instruct anybody else to begin the preparation of detail plans for the construction of this viaduct?

A. No.

Q. Never did any work of that kind at all?

A. Not on this viaduct.

Q. Never were directed or instructed by any superior officer to either do or prepare to do any such thing, were you?

A. The detail plans—no sir.

Q. Never has been a moment, so far as you are informed, since this ordinance was passed, but what the purpose of the Company was to fight it and not to begin preparation to construct it?

A. I am not in a position to answer that.

Q. So far as you are concerned the only thing you were instructed to do was to come to Omaha and inspect the plans and specifications, and the next day after you got back you were instructed and directed to make an affidavit to help the Company maintain this injunction suit?

A. That is a correct statement.

Q. That is all you have been called upon to do except to take further steps in the same line?

A. After the passage of the ordinance declaring the necessity I was directed a number of times to come here and go through the usual procedure; that is to attend the hearings of the council, and attending their meetings relative to the preliminary steps.

Q. Now was that relative to the preliminary steps to construct a viaduct, or the preliminary steps to get ready to make a test in court to avoid the construction of the viaduct regardless of what kind of a structure was ordered by the city?

A. I can only answer that by analogy, if you will permit me.

Q. Give the best information you have, if you have any, and that will be better than analogy.

61 A. My best information is that we are taking a preliminary step in the ordinary way, that would have resulted in construction on time, and good faith, of a viaduct that appeared reasonable to us. The early handling was in no way different from the early handling of a number of viaducts that we are building.

Q. Now, let me inquire, Mr. Smith, if it is not a fact that your company is paying its share of the construction of a viaduct for instance, in the City of Lincoln, at the present time, or that has been completed, where the requirement as to strength and carrying quali-

ties is even greater than this, to prepare for the carrying of street cars, two cars end to end, upon a double track, of 40 tons, where this only requires 35?

Mr. BROGAN: Objected to as incompetent, irrelevant and immaterial, and for the further reason that the full details of the building of the viaduct in Lincoln are not shown here and are not material in this case; for the further reason that the actual construction in Lincoln is being done under a contract between the Railroad Company and Street Company whereby the street car company pays its share of the cost of maintenance of the viaduct.

A. It has been designed to carry street railway cars.

Q. And do you mean to say, as an engineer, that because you and the street car company have agreed that, for instance, you are building a viaduct 50% greater than is necessary, 50% in excess as to strength, for instance, or 50% for what you term impact?

A. Well it is 50 per cent for the difference between street car traffic and ordinary traffic. If the city is willing to permit street cars to operate over a viaduct I see no reason why they should not pay the excess cost made necessary thereby.

Q. Here is what I am inquiring about; isn't it a fact that the viaduct that you are building down there is equal in strength and carrying qualities of the requirements of these plans and specifications?

A. No.

Q. In what respect is the Lincoln viaduct that you are paying your share to construct less than this proposed structure on Dodge Street?

A. The first time in which it is less consists in a less width of roadway; the Lincoln viaduct has a 5 foot less width of roadway resulting in a proportional decrease in cost. We have designed there, it is true, for 40 ton cars, and we have not added 50 per cent for impact, resulting in a less strength of approximately 25 per cent less than would be required by these specifications.

Q. Don't your plans down there, and your specifications, require anything in addition for impact?

A. They do not.

62 Q. All then that is required there is sufficient to carry the cars, just as these specifications require, without any per cent added for what is termed impact?

A. Impact yes.

Q. Now you are familiar with those plans are you not, Mr. Smith, and know that to be a fact?

A. Yes sir to the best of my knowledge. I designed the viaduct and was present at all the preliminary negotiations—entirely familiar with it, and those are the facts—and my design was accepted.

Q. What loading did you provide for on the sidewalks in that plan?

A. My memory is not so clear, going into details—I think 100 pounds on the sidewalk and roadway in the design of the smaller

parts, but in the longer girders we decreased that to 75 pounds, which is in line with good practice.

Q. Of course, whether you paid for the viaduct yourselves entirely, or whether you contracted with somebody else to bear a share of it, your plans would not differ; you would construct a viaduct which you would consider proper and necessary regardless of who was paying for it?

A. Yes sir whatever was proper and necessary from an engineering standpoint.

Q. Just state to us now, Mr. Smith, if you will, in what manner and to what extent there is an excessive requirement here as to strength of viaduct over the Lincoln structure, which you say was designed to carry cars of 40 tons each?

A. That is so clearly set forth in my affidavit—well, that I believe does not refer to the comparisons—I will try to give you a comparison. The excess cost of this viaduct over the Lincoln Viaduct would be partly due to excessive width of roadway.

Q. I am referring more particularly to what you term excess requirement as to carrying quality, rather than to cost.

A. Cost would be futher increased by the allowance for 150 pounds per square foot on the roadway and sidewalks in the Omaha viaduct as against what was used, as my recollection tells me, 100 pounds, in the Lincoln viaduct. In addition to that the allowance for 35 ton cars plus 50 per cent, which would be 52.5 pounds as against a 40 ton car that was used at Lincoln, it is more than 50 per cent in excess.

Q. Now you say, Mr. Smith, that the depth of floor as shown on the present plans is approximately seven feet?

A. The depth of floor is not directly shown on the plans and can only be obtained by figuring from the elevations shown here. Seven feet is about what is required by this type of construction.

63 Q. Then it is your judgment that by some other type of construction that depth can be reduced to two feet and construction equally as good as this still maintained?

A. Yes.

Q. Isn't the construction as shown by this plan good construction, and the method that has at least been followed in many cities and used by many competent engineers in the construction of viaducts?

A. It is good practice under some conditions, under the conditions to which it is adapted. It is not adapted to conditions at this point.

Q. How do conditions differ at this point from the conditions on 10th street and 16th Street viaducts in this city that would render this plan unsuited?

A. I will tell you a condition under which a deep floor is permissible: In a case where the natural grade of the viaduct is high and the tracks are low. That would obtain where the tracks follow a low valley and the land on both sides of the valley is quite high, and the distance from roadway to rail is large, so that regardless of the depth of structure it would not be necessary to raise the viaduct; whether

2 feet or 7 feet were used in such a case would be immaterial. There would be a slightly better appearance perhaps by putting all the steel work underneath, resulting in a great depth of floor. On the other hand, if we are starting from practically level ground we must go up a grade across the obstruction in which way we refer to the tracks, and go down again. We want to go up as short a distance as possible to give the proper clearance. Under these conditions this type of floor is not desirable, as it results in making all traffic go considerably higher. By using a less depth of floor the traffic goes up a shorter distance and down a shorter distance, and it results in no increased cost of construction.

Q. Is that true in this case?

A. Resulting in no increased cost, you mean—it is true in this case. All we need to do is to go up and come down again and we want to make it as short as possible.

Q. Is it true in the construction of this viaduct that, for instance, the entrance will be up grade, on the west side?

A. Both sides will be up grade.

Q. Well then, there are two propositions upon which you base that, as I understand it; one the increase in elevation and the other the increase in cost?

A. Yes, the increase in elevation being directly responsible for the increase in cost. From our standpoint the unnecessary cost made necessary by that is the ruling consideration.

Q. And leaving out the proposition, as I understand it, of carrying the viaduct about 215 feet further east across what is
64 known as the Saddle Creek sewer, the reduction of the depth of the floor from approximately seven feet to two feet would reduce the length of the viaduct, or the necessity therefor, by about 150 feet?

A. Approximately, yes.

Q. Well would you say that you could also cut off the 215 feet besides, reducing the length of the proposed viaduct by 365 feet?

A. No. One would only obtain in case the other were not carried out. They are alternate.

Q. Now you refer to the length of the span over the track—did you not?

A. Yes.

Q. What did you say was the length?

A. The length is 40 feet between the centers of the bents.

Q. And did you complain of that as not being proper construction?

A. The length—in my affidavit I stated that the length did not permit—did not leave room on both sides of our present main line for a siding at the standard distance out—with the standard distances.

Q. Have you any authority from the city of Omaha that you know of to put a side track in Dodge Street, one on each side of your present main track crossing Dodge Street?

Mr. BROGAN: That is objected to as calling for a conclusion.

(No answer.)

Q. It is your contention that in constructing the viaduct there ought to be room to put one side track at each side of the main track on Dodge Street, this public highway, is that your idea?

A. My theory is that the bents should be so placed that the road will not be restricted from necessary future development.

Q. Do you mean by that that there should be room enough left for you to run a side track across the street on each side of your main line under the viaduct?

A. Yes, I am looking forward to the time when the traffic conditions may make that necessary.

Q. Now was there, or is there at present anything to indicate that the company either desired or intended to lay a side track in the street across Dodge Street each side of your main line?

A. No, and I don't know as it is even contemplated now, but when, at no greater cost provision can be made in a permanent structure to take care of those things in the future, at no additional cost, we consider it desirable to do so.

Q. You already have one side track there that crosses the street parallel with your main line?

A. Parallel is incorrect——

65 Q. Well, perhaps I am mistaken—it crosses the street?

A. It is a spur that crosses.

Q. The viaduct would not interfere with that?

A. No sir.

Q. In other words this plan would not interfere with the operation of any cars upon any track there at present?

A. No.

Q. Then you complain, as I understood you in your testimony here today, of the grade, and said it was not reasonable for traffic, or was that your statement?

A. My statement was that the light grade between the Saddle Creek sewer right of way and our track, of *three* 3.23 per cent resulted in an increased cost of construction, making the approaches longer than necessary.

Q. What do you say would be proper there, a shorter and steeper grade?

A. Yes; this plan shows at both ends of the viaduct 6.2 per cent grade, which would seem to indicate that there would be no added burden if the 3.23 per cent grade was steepened to 6.2 per cent the same as at other points in the viaduct, and thereby reduce the length of the approaches. The length of the approaches is not such any how as to be a serious interruption to traffic of any kind.

Q. Didn't you testify, or did you, rather, that you base your opinion and your statement as to what that grade on the viaduct ought to be, that is the grade of the approaches, upon other grades, or what you term the steepest grade in the city or surrounding community that is considered proper or capable of use?

A. My meaning was, if it was not clear I will try to make it clear now, that the maximum permissible on the viaduct should not be greater than the greatest grade on the city streets at other points. That is modified in this way: where there are no obstructions and

there is no added expense except an increased length, by using a slightly less grade, that is generally done. We don't make the grade on the viaduct equal to the greatest in the city, but where by doing so we can avoid heavy expenditures arising out of the long approaches we consider it justifiable.

Q. In other words you would say that the grade on this viaduct, or the approaches thereto, and what the city would be entitled to require might be determined, in some measure at least, by taking into consideration to some extent the grades on other streets?

A. Yes.

Q. Why not confine it to the grade that you have destroyed, for instance the grade of Dodge Street that you have deprived
66 the city of the use of by rendering the crossing unsafe; that is, presuming that you have rendered it unsafe, and rendered a viaduct necessary?

A. That would be impossible because a considerable length of that street is practically level, and would mean a viaduct of considerable length, and under some conditions would make a viaduct of interminable length.

Q. What I mean by the steepest grade is the grade——

A. I don't mean right at the viaduct, but going out Dodge street you have to go up and down hills.

Q. Are you able to say whether or not the proposed plan gives the traveler on that street any easier grade in approaching the viaduct on either side than the present grade on Dodge Street?

A. Not knowing the present maximum grade on Dodge street I am not prepared to answer.

Q. In other words is it your understanding that it is not the right of the city *of* require you to practically reproduce the surface of the street; in other words the grade that you have taken away and denied the citizen the use of?

A. That is subject to so many other considerations, and becomes so much involved, that it is not possible to give a simple answer. For instance, suppose this grade on the west end were decreased it would mean that we would have to extend the approaches into 46th street, thereby largely increasing the abutting damages to the city, as well as the cost of construction to us. In addition we come to the Saddle Creek sewer right of way in which we are apparently already in difficulty. A steeper grade would have avoided that. Now it is necessary, apparently according to these grades, to bridge over that Saddle Creek sewer.

Q. You say the original plans show a double track street railway, I suppose that is what you mean.

A. Yes sir.

Q. And I think you said that if no street car traffic was to be permitted on the viaduct that a 24 foot, instead of a 35 foot roadway would be sufficient.

A. I did.

Q. I understand you also that it is your contention that if a viaduct was not intended to carry street cars the length of the viaduct, in addition to eliminating what is called the impact requirement,

that the strength and size could also be reduced from what is required to carry the street cars?

A. Yes sir.

Q. And it is your contention, is it not, Mr. Smith, that the 50 per cent additional for what is called impact is unnecessary even if the street cars are permitted to cross the viaduct?

67 A. Yes.

Q. And if you figure up, or can you estimate what would be the difference in the cost of the construction of this viaduct by leaving out that one item, even according to the present plans and specifications?

A. Elimination of any provision for impact would result in a saving of $6,000.—the elimination of impact.

Q. How much would it add to the cost of the viaduct to construct it of sufficient strength to carry street cars, leaving out the impact proposition, over what it would cost for other street traffic?

A. It is about $30,000.00 on the viaduct as drawn here.

Q. I mean as drawn there, taking that grade and height and length.

A. Yes.

Q. Now, I understand you to say that in construction, that what is known as impact is taken into consideration by engineers in certain cases; that is where you are running a steam railroad.

A. Yes.

Q. Now does it make any difference if it is steam or something else, if it is the same or approximately the same weight of machine, and at the same speed that it is run over the tracks?

A. Yes sir it makes all the difference in the world. The American Engineering and Maintenance of Way Association, with headquarters at Chicago, appointed a large committee for the investigation of that subject, and their investigations have extended over a number of years. The tests are now complete. They have not yet worked them up in shape for publication, they are so extensive. During the preparation of these records and the taking of the tests I was in close touch with the members of the committee having that work in charge. Professor Turneaure, Dean of the college of engineering, University of Wisconsin; Mr. C. H. Cartlidge, bridge engineer of the Burlington; and C. H. Crandall, Purdue University, were the sub-committee having these tests in charge. They found that the impact varied almost directly in proportion to the counter-balancing of the wheels on the drivers of the locomotives. The Burlington had used in some of the tests some balanced compound locomotives in which the counter-weight is perfectly balanced; there is no unbalanced weight. No matter at what speed those engines ran they got practically no impact. They found further that the impact on the bridges was confined almost entirely to the locomotive weights; that there was practically no impact whatever under the cars. The conditions under which a street railway operates an electric car are similar to the conditions under which a car operates in the train. There is centrifugal motion only. There is no unbal-

anced weight such as the counter weight or connecting rods
68 of the locomotive. It would be impossible for me here even to touch on the reason why locomotives are built with unbalanced drivers. It is done on purpose and for reasons.

[A.] That's all right, I don't care about that. Then this is the opinion that you reach on that proposition, that a thirty ton electric motor crossing a viaduct at a speed of thirty miles an hour wouldn't have any more effect upon the viaduct than if you had a team of horses, or a half a dozen teams drawing a load on a wagon slowly across the viaduct, at the same speed?

A. Hardly as much, because the feet of the horses would cause more pounding than the wheels of the street car could possibly.

Q. So there isn't any occasion from your viewpoint as an engineer to build a viaduct any stronger or any different to carry street cars run by electricity at five or ten or thirty miles per hour, whatever it may be, except in so far as the cars are of greater weight?

A. Greater weight, yes sir.

Q. You would build them, except simply for the weight of the street car, the same as you would for the weight of teams, wagons and foot passengers?

A. Yes sir.

Q. Do you say that the tests that you have mentioned were made with street cars, or in making the tests that they experimented with street cars or only with steam cars?

A. Only with steam cars. I am not aware that any tests were made with street cars or electric cars.

Q. But the conclusion is drawn, as I understand you, that there is no necessity for what is termed impact in the use of street cars, because no impact was found in the running of the cars on the railroad?

A. Yes.

Q. But there was found an effect of the impact so far as the engine was concerned?

A. The locomotive drivers, to such an extent that the Burlington Railroad does not today use any impact whatever under the wheels of any of their trains in the design of their steam railroad bridges, except under the locomotive drivers. They take the weight of the whole train of cars and design the bridge for the heaviest train they expect to run. They do not add any impact whatever, but they multiply the weight of the drivers by two. They assume impact on the drivers, but they absolutely ignore impact on the remainder of the train.

Q. Now, isn't this probably true, or is it, Mr. Smith, that when they multiply, as you say, the weight of the drivers by two, that they allow one hundred per cent of the impact, wouldn't that be just increasing it just one hundred per cent?

69 A. On the drivers only.

Q. Wouldn't that be sufficient of an increase to take care of the weight of the heaviest train?

A. Not on a very long bridge.

Q. Not if the train produced what you term the impact too?

[Q.] For example, supposing a bridge was 250 feet long, which is a very usual length of the span on our railroads, and the engine is sixty feet long and followed by another engine sixty feet, the drivers probably would take up 15 feet of that length; now here we have one hundred and twenty feet, thirty feet of which, or one fourth, is one hundred per cent impact. Now they only permit that on the drivers on one side at a time, because the counterweight is up on one side and down on the other, and it works like that (indicating), and you get the throw here and the throw there (indicating), that means that the total weight on that bridge is only increased fifty per cent on the drivers, increased one eighth for one hundred and twenty feet, and that is really an increase of one sixteenth on two hundred and forty feet of the bridge. There is an impact really of about six per cent on that two hundred and forty foot span.

Q. Then you state, as your opinion and judgment, and you also say it is your practice, that in constructing a viaduct for carrying street cars that weigh even forty tons and may run up to twenty miles an hour, that in constructing such a viaduct you would not take into consideration impact at all, or allow anything for that?

A. Yes.

Q. And you say nothing has been allowed, nothing was allowed for impact in the construction of the Lincoln viaduct?

A. Yes. Will you let me add a little to that?

Q. Certainly.

A. You understand that the weight assumed for these street cars is the maximum weight of those cars fully loaded; that means all the seats full, people standing to suffocation in the aisles and hanging on the vestibules, and two such cars coupled together, one pushing or pulling the other; we assume a crippled condition, and two more cars on the other track in a similar condition. Now if that condition is reached once in a month we have a factor of safety of four on our steel under ordinary conditions to take care of any slight increase of which we might know nothing.—If a man happened to have an extra heavy dinner or something of that sort.

Q. How about some of those cars, speaking of impact and change of weight from one side to the other, some of those fellows that have flat wheels and go over it, would that produce impact?

A. That is taken care of by our factor of safety. It is an item you can't figure. It would not be tolerated for a sufficient
70 length of time—that comes under the factor of safety; that is one of the indeterminate items; that is what the factor of safety is for.

Q. Now you complain, as I understand it, that while the plans are not complete, so far as they go they show certain open spaces that would permit the debris to go through the surface of the viaduct?

A. Yes.

Q. And on to the steel girders underneath, and that would cause them to deteriorate you say?

A. Yes.

Q. Isn't that one of the details that would have to be covered by the detail plans and specifications?

A. One of the details that would require setting out before we go ahead with any work.

Q. Wouldn't take very much study to determine that the floor of a viaduct ought to be laid so as not to permit the debris and dirt and filth to go through?

A. It should not, but apparently a study of these plans would not indicate that.

Q. It would not take much study to study out a detail on that?

A. No it would not. It would result in a trip to Omaha to take it up with the City Engineer—a departure from the plans.

Q. And floor beams being riveted to the girders, do I understand you complain of that?

A. Yes, to the girders.

Q. What is your complaint in regard to that?

A. I think that has been covered in our talk as to the depth of floor. That is the result of this type of construction.

Q. Now you spoke there of this specification, at 37-"A", or live load required; I think you spoke of it being remarkable, in your judgment, being one hundred and fifty pounds?

A. Yes.

Q. What is your contention in regard to that?

A. I will refer to Mr. Craig's statement in which he says that one hundred and fifty pounds for the sidewalk was a typewriting error, I believe, and should have been one hundred. That reduces the load on the sidewalk to what might be termed a reasonable load, although my personal opinion is that seventy-five pounds would have been sufficient. No objection would have been raised had it been one hundred. On the roadway my contention is that one hundred and fifty pounds per square foot, aside from the other special loads, such as road rollers, traction engines, and etc., is an unusual load, and a loading that cannot be brought about with any equipment that we now know of. My investigations show me that heavy motor trucks and heavy coal cars, coal wagons, will produce a much less load than one hundred pounds per square foot on the floor. I would very much like to hear of any loading that
71 would produce one hundred pounds per square foot over any extended area. It is not necessary to consider it on a small area because it is controlled by steam rollers, traction engines and things of that kind.

Q. Do you know whether your railroad has joined in the construction of any other steel viaduct in the city of Omaha in recent years?

A. I am not prepared to answer that for the reason that we operate into the Union Pacific depot, or Union Depot, and operate under a number of viaducts which have been built since we have been running in, and I don't know whether we have paid anything on them or not.

Q. That is what I want to inquire about, if you know of the construction of the tenth street viaduct, probably the heaviest in the

city, leading from the Union Depot, and what the requirement there is as to surface load?

A. I don't know.

Q. You used the term "Flock of road rollers," did you mean as many road rollers as might be able to occupy the space on the viaduct at one time would not produce a weight of more than one hundred pounds per square foot of surface?

A. Yes; my point was that we did not consider such things as that; we consider if there were one steam roller on the viaduct at one time it is all that need be considered in addition to the one hundred pounds per square foot over the remainder of the floor.

Q. Now you spoke of the fibre stress as being rather unimportant, I think, and you state that the plans show poles eighty feet apart, that is street car poles, did you say it was your construction of the plans that the Company would be required to place and maintain poles for the Street Car Company?

A. Yes; we recently spent some money for that purpose at Lincoln. The Street Car Company there wouldn't spend any money for poles, and in order to save marring the appearance of it we arranged for the poles. Seeing the poles on these plans we presumed that the City Engineer had provided for those poles. The same applies with reference to the electric lights.

Q. Your contention is, that forty two feet rather than forty on the span over your track would be sufficient?

A. Yes.

Q. That includes one track on each side of your main track at what you call standard distance—what is standard distance?

A. Fifteen feet center to center of tracks and seven feet six from center of track to the nearest obstruction. Those distances have been accepted to avoid injury to brakemen hanging on the side of cars, to avoid striking an obstruction or other cars.

72 Q. What was it you said you could not determine from the plans—material for foundations?

A. Yes, there is nothing here below the ground line.

Q. You would not expect to find on the plan a designation of the material to be used, you would find that in the specifications?

A. On the plans—always in a case of that kind I send men out to find the character of the material; if they can't get it from wells or something of that kind in the neighborhood, we send out a boring outfit. In Lincoln, for instance, I bored six holes thirty-five feet deep before we could tell.

Q. Do you mean by this that you can't tell from these plans what you would be required to put in there?

A. Yes sir, can't tell whether simply a concrete pedestal would be all that was necessary or whether it could stand on piles, and there is no way to tell from the specifications.

Q. Neither you nor anybody else could tell except as you say, from an examination of the ground?

A. No sir.

Q. In other words, wouldn't that be one of the things you would be required to determine, namely, that you would be compelled to

build a suitable foundation for that kind of a viaduct that the plans and specifications called upon the Company to build?

A. Yes.

Q. And wouldn't that be a part of your duty then in the construction of the viaduct to determine what sort of a foundation was necessary to properly construct the viaduct called for?

A. Yes, and that investigation would further delay the actual commencement of erection and construction.

Q. But I understood you to say that you couldn't build the viaduct without knowing what the foundations were, and I took it that you meant that you couldn't build the viaduct until the plans and specifications set out what the foundations and materials should be?

A. Well, that is correct; we couldn't tell until something sets it out.

Q. But you can determine that for yourselves?

A. Oh yes, we can go and determine it, and then build it.

Redirect examination.

By Mr. BROGAN:

Q. I will ask you to state whether at the time you visited the City Engineer's office in April, 1910, and examined the plans and specifications which were then shown to you, you knew that the Company was contesting or intended to contest the right of the city to compel the construction of the viaduct?

A. I did not.

Q. And did you go to the City Engineer's office for the purpose of obtaining data in support of any such contention?

73 A. I did not.

Q. You may state whether or not the Missouri Pacific Railway Company has joined with other companies in building viaducts in the City of Omaha, without contest and without instituting contests where the requirements for the construction of viaducts are reasonable in themselves?

A. It has.

Q. Where?

A. At Locust Street we are preparing to go ahead; at F Street in South Omaha we are preparing to go ahead without contest; and I have not yet heard of Nicholas Street, but from the plan I saw this morning in your office unofficially I can say that I think we will go ahead without contest.

Q. What information the Legal Department of the road may have had and may have acted upon in instituting this proceeding, of course you would not, in the nature of things know, would you, Mr. Smith?

A. No.

Q. Now, in answer to a question by the City Attorney as to the cost of the viaduct, and for the maintenance of the Street railway over it, when you eliminate the factor of the effect of impact, I understood you to say that in that case the construction of a viaduct

for a street railway would not be different from the ordinary traffic, did you mean to be so understood?

A. I meant to say that the construction would not be different except in so far as the excess weight of the cars is concerned.

Q. How does the weight of the traffic of a street railway like that operated in Omaha compare with the weight of ordinary street traffic?

A. It is many times the ordinary street traffic. It is about double the weight of what we might call extraordinary street traffic such as heavy traction engines and steam road rollers. For example, a fifteen ton road roller as against a thirty five or forty ton street car.

Q. What is the weight of an ordinary large automobile—six passenger?

A. Oh, three tons—five or six thousand pounds

Q. And the heaviest loaded wagon?

A. The heaviest loaded wagon I have been able to get any line on is a heavy wagon drawn by three horses. It weighs nineteen thousand pounds loaded—less than ten tons.

Q. What is the weight of an ordinary steam roller?

A. An ordinary steam roller used on city streets weighs fifteen tons, but there are a few road rollers in the United States weighing twenty tons—fifteen tons is a pretty heavy roller, and twenty tons is very heavy. There are less twenty ton rollers now than in the past on account of the fact that it has been found practically
74 impossible to move them from place to place over ordinary roads. Fifteen ton rollers are what everybody is using in designing now.

Q. What is the weight of street cares filled with passengers?

A. The heaviest car you have here weighs about twenty tons loaded. There are heavy cars in Kansas City—the heaviest cars in Kansas City weigh twenty seven tons without load, and it is possible by loading them to capacity to bring their weight to thirty five tons. The heaviest car in Lincoln weighs about fifteen tons.

Q. What is the relative cost of a viaduct of the same width and length, in the first place, when it is sufficient for the ordinary heavy street traffic, including steam rollers, and the traffic of a street railway such as that in operation in Omaha?

A. The street cars make necessary an increase of somewhat over twenty five per cent in cost of the same length and width.

Q. I believe you have stated that you are able to eliminate some of the width if street car traffic is not provided for?

A. Yes, sir.

Q. I will ask you to state more in detail the reductions that might reasonably be made in the cost of this viaduct by reducing the length and width and eliminating this extra strength required for street car traffic and for the supposed effect of impact in street car traffic?

A. Based on the total estimated cost, according to the plans, of eighty thousand dollars, the approximate items are as follows: The reduction in length due to using a less depth of floor, $17,000.00; reduction in width of roadway from thirty five feet to twenty four feet $10,000.00; reduction in weight on roadway from one hundred

and fifty pounds to one hundred pounds per square foot $3,500.00; reduction in load on sidewalk from one hundred and fifty pounds to one hundred pounds per square foot $1,000; decrease in cost due to elimination of street cars, including impact $17,000.00.

Mr. DUNN: That is still leaving it a twenty-four foot roadway?

The WITNESS: Yes.

Q. Does that $17,000.00 come out of the twenty four foot viaduct?

A. All this together comes out of the total cost of the viaduct. Decrease in cost due to using higher fibre stress on woodwork and pressure on masonry, $500.00; decrease of cost of trolly and electric light poles $1,000.00; leaving a sum of $30,000.00 as the
75 estimated cost of a viaduct with a twenty four foot roadway, not designed for street cars.

Q. And what about the length?

A. With a length of approximately six hundred feet.

Q. Would it be a feasible proposition, Mr. Smith, to construct a twenty four foot viaduct and run the street car traffic over it?

A. It would be feasible. I have in mind two viaducts in St. Louis, one at 12th Street, and one at 14th Street, both of which are about a quarter of a mile long. One of them has a nineteen foot roadway, and with two sidewalks about seven feet wide. They are close to the heart of St. Louis in the business district. They get a very heavy team traffic, a very heavy electric car traffic, amounting to as much as a car a minute during the busy hours. They do not get many pleasure vehicles. The nineteen foot roadway is taken up entirely by the double car tracks. When a car moving, we will say north, meets a vehicle moving north, it is necessary for the vehicle to cross over to the other track to let the car pass and then cross back. I spent a number of hours on the 14th street viaduct a short time ago and found that causes very little inconvenience, and that, as a matter of fact, vehicles and street cars will make a speedway out of the viaduct and make better time across that viaduct than along an equal length of street anywhere in the city.

Q. What is the reason of that?

A. On account of the fact that there are no stops on the viaduct and no cross streets to look out for.

Q. Are you able to state what increase there would be in the cost of a viaduct twenty four feet wide and about six hundred feet long adapted to the needs of a street railway in the manner just described above the cost of $30,000.00 which you have given for the construction of a viaduct twenty four feet wide and six hundred feet long not designed for the street cars?

A. It would increase the cost approximately $15,000.00.

Q. And to increase the width of a viaduct six hundred feet long to a width of thirty five feet and construct it suitably for street car traffic, how much would it increase the cost over that of a viaduct costing $30,000.00 as you have described?

A. It would increase the cost to approximately $63,000.00.

Recross-examination.

By Mr. DUNN:

Q. Now you spoke of increased strength of the structure required by a thirty five ton street car as being, as I understood you, practically one hundred per cent over the cost of a viaduct required to carry a fifteen ton roller; now is that correct—isn't it a fact, for instance, that a fifteen ton roller is about half as long as a
76 thirty five ton street car, and therefore a viaduct that would carry a fifteen ton roller with its concentrated weight would equally as well carry a thirty ton street car?

A. No, indeed, not unless you had spans about ten feet long or something like that,—or very short spans. You require us to have four street cars. Each of these supports, for example, eliminating all weight from consideration except the street cars against the road rollers—each of those supports is required to carry its share of two street cars end to end; that would mean that each support would have to be designed to carry thirty five tons. If a steam road roller of fifteen tons were put on there you couldn't get it all over one post, you might get two thirds over one support, in which case a support would be designed for ten tons as against thirty five tons of street cars. That is one item. That could not be carried right through because of dead load, load on the sidewalk, load on the roadway, all affect the percentages.

Q. What I want to get at is this, in the construction of the viaduct—the street cars are approximately thirty feet long, are they not?

A. About forty feet.

Q. A street car forty feet long, we will say, weighs thirty tons?

A. Yes.

Q. Now then, my inquiry is whether it would not require the same strength of viaduct to support a road roller twenty feet long weighing fifteen tons that it would require to support that street car forty feet long and weighing thirty tons?

A. No. I see your point. That comparison would only hold if you had a string of those road rollers one after another touching ends so close that they couldn't move.

Q. You would simply refer to it as a weight of five hundred tons because of the fact that there was one hundred of them end to end, you would simply take the weight on the viaduct?

A. No, it would depend on the spans. Suppose for instance, that there was a forty foot span; all you have to consider is the maximum load that you can get on eighty feet of that viaduct.

Q. Suppose we take this table for example, and we will say this is forty feet of viaduct——

A. Yes.

Q. Now then, you put a street car on here forty feet long weighing thirty tons——

A. Yes.

Q. Now then, what would be the difference in the requirement of construction between this forty feet of viaduct sufficient to hold that

thirty ton street car, and one half of it or twenty feet sufficient to hold a fifteen ton roller half the length?

A. That can only be answered in pieces. Now there are some parts of the viaduct that would not have to be increased in strength. They are the parts that come directly under the load, but
77 when you come down to these lattice girders here they would have to be increased in strength almost directly in proportion to the difference in total weight—not quite.

Q. Why is that—that is you mean it would have to be increased from a viaduct sufficient to carry your fifteen ton roller covering a length of twenty feet, to a viaduct sufficient to carry practically a thirty ton roller of the same length?

A. No, hardly that.

Q. I thought you said you did practically have to do that?

A. Pretty near in proportion, but not quite.

Q. In giving your figures of the reduction in the cost of the construction of the viaduct, that might be made, you speak of eliminating the street car traffic and the effect of the impact, as effecting a saving of $17,000.00. Now what would you say as to this—making two items of that, separating them—can you do that?

A. Those figures are subject to conflicts, and with that reservation, yes. $6,000 for the impact and $11,000 for the street cars.

Q. Of course, if you eliminate the street cars that eliminates the impact?

A. Yes.

Q. Your statement is also that you can eliminate impact even if you retain the street car. In other words, there is no necessity for fifty per cent increase for impact?

A. Yes, that's it.

Q. Now then, your twenty foot roadway proposition even though the viaduct should be constructed to carry street cars, would necessarily require, as on the viaduct at St. Louis that you refer to, street car and team traffic on the same portion of the viaduct?

A. Yes.

Q. That is, it would not leave room on each side of the double track for a team?

A. No, but for further information in that connection I would refer you to any street in Omaha after the first snow storm next winter, in which you will find the team traffic using the street car tracks and crossing over when the car comes along.

Q. Well, isn't this true, Mr. Smith, that recognized authorities on the construction of highways, at least for a great many years and many of those who are recognized as authority now in the building of highway bridges, always require and allow some per cent for what is termed impact?

A. Very few. There are a few engineers who allow a small percentage. I have seen it variously stated as high as ten per cent for that item.

Q. Do you recognize a man by the name of Cooper as an authority on the construction of highways?
78 A. Theodore Cooper.

Q. Do you know and recognize such an authority who is

considered a standard authority on the construction of highway bridges?

A. Yes, Theodore Cooper.

Q. And doesn't he require in all cases of highway bridges, at least a certain per cent for impact?

A. My recollection is that he does not, but that in his latest specifications, recently issued within the last year he gets around the subject in a little different way. He uses a stress for dead load considerably above that ordinarily considered proper. He uses something similar for live load, but no impact. The net result of it is, that he does not allow impact, but he gets the same structure that we get, by using the same stress for dead and live weight. Another point in the case of Mr. Theodore Cooper, I want to say that we should not follow him, because he was consulting engineer on the biggest bridge accident that ever happened. He was consulting engineer on the Quebec Bridge which fell in 1907, and now lies in the bottom of the river.

Redirect examination.

By Mr. BROGAN:

Q. Mr. Smith, have you figured out since yesterday the percentage of increase made necessary to construct a viaduct sufficient to carry the traffic of a thirty five ton street car with its load, over and above the strength that would be necessary in a viaduct, the greatest demand on whose sustaining strength would be a fifteen ton steam roller, both with and without an allowance for the effect of impact?

A. I have.

Q. And what do you say is the percentage of increase necessary for a thirty five ton street car as compared with a fifteen ton steam roller without figuring in the effect of impact?

A. For the main girders of the viaduct forty feet long the increase is sixty five per cent without impact.

Q. And if you add to that a fifty per cent allowance or increase for the effect of impact, then what per cent is it necessary to add to the strength required for the fifteen ton steam roller?

A. An increase of one hundred and forty per cent.

Q. Now is that simply figuring in the fifty per cent specified in the city specifications?

A. Yes.

Q. Do those percentages mean cost?

A. No they mean strength.

Q. Now what is the relative cost of the three different structures, that is, first, the one that would be sufficient for a fifteen ton steam roller; second, the one that would be sufficient for a thirty five ton street car without the effect of impact; and thirdly, the additional strength required by allowing fifty per cent for the effect of impact?

79 A. Assuming the cost of the viaduct to take care of fifteen road rollers, as maximum, as one hundred per cent the cost would be increased approximately fifty per cent to take care of

street cars without impact, and about seventy five per cent with impact, on the entire structure.

Q. If a viaduct could be constructed at 45th and Dodge Street, about six hundred feet long and twenty four feet wide, sufficient for all ordinary street traffic including fifteen ton steam rollers, for about $30,000, then what in your judgment would be the approximate cost of a viaduct of the same length and width constructed so as to sustain a thirty five ton street car, without allowing for impact, and also the added amount for impact?

A. Without allowing for impact it would be about $45,000; with the allowance for impact it would be about $55,000. The figures are approximate, and of course the figures could only be arrived at exactly by a very careful detailed estimate of each viaduct.

Witness Excused.

GEORGE W. CRAIG, having been heretofore called, sworn and examined as a witness on the part of complainant, is here recalled as Witness on the Part of Respondent. Being examined in chief by Mr. I. J. Dunn, he testified as follows:

Q. You are the City Engineer of the City of Omaha?

A. Yes sir.

Q. I call your attention to the "General Specifications for the construction of steel highway bridges and viaducts, approved by the Mayor and City Council, 1908"; did you prepare those specifications, or were they prepared by your predecessor, Mr. Rosewater?

A. They were prepared by my predecessor, Mr. Rosewater.

Q. You may state if those are the only specifications, so far as you know, that were approved by the Mayor and City Council from that date up to the approval of the revised specifications which have also been offered in evidence, and which were approved July 13, 1910?

A. They are.

Q. And I understand that the specifications that have been offered, bearing date of May, 1908, and the notation "Revised December, 1909" were merely your own working specifications for your office, that you changed from time to time as you see fit?

A. They are.

Q. Who prepared the plans for the construction of the Dodge Street viaduct, that is the first plan, yourself or Mr. Rosewater or Mr. Ayerigg?

80 A. The original plans were prepared by Mr. Rosewater.

Q. And what is termed the "alternate plans," under whose direction were those prepared?

A. Under the direction of Mr. Ayerigg.

Q. Were those plans approved before you became City Engineer?

(No answer.)

At this point the witness Craig was temporarily excused to permit the taking of the testimony of the next witness at this time.

R. A. LEUSSLER, is here called and sworn as a witness on the part of the respondent. Being examined in chief by Mr. Dunn, he testified as follows:

Q. What is your business?

A. I am assistant General Manager of Omaha & Council Bluffs Street Railway Company.

Q. How long have you been connected with the Company in this city?

A. Since the first of December, 1902.

Q. Are you secretary of the Company also?

A. No, not now.

Q. You have been in the past, have you?

A. Yes sir.

Q. Familiar with the books and records of the company, are you?

A. Oh, yes.

Q. You may state whether or not the Omaha & Council Bluffs Street Railway Company operates a line of street cars from the City of Omaha westward along Dodge Street and over the crossing at its intersection at about 45th or 46th street, where the line of the Missouri Pacific Railroad Company crosses Dodge Street?

A. Yes, it does operate cars there.

Q. Now just give us the route of that line, where does it extend to, and from what part of the city of Omaha?

A. Well, the southern terminus of it is at Riverview Park, which would be Valley Street and 10th Street; it runs northward on 10th Street to Farnam; westwardly on Farnam to 40th street; northwardly to Dodge Street; then westwardly to 49th street; then north to Underwood Avenue; up to 50th street, westwardly, and on westwardly to the Happy Hollow Club, and then comes back to 50th; then it runs south and comes back on Dodge Street.

Q. It is a double track line, isn't it?

A. It is a double track line at this intersection. In Dundee it forms a loop, so in Dundee it is a single track around from
81 49th and Dodge and west to the Happy Hollow Club and back to 49th and Dodge.

Q. Where are the city limits if you know, between Dundee and Omaha—49th street?

A. 48th I understand is the city limits.

Q. How long, if you know, has the Omaha & Council Bluffs Street Railway, or its predecessor, operated this line of railway along Dodge Street, across 46th street—45th and 46th?

A. I can't tell you the exact year in which that line was built and operation begun, but it is at least twenty years.

Q. And do you know under and by virtue of what authority, if any, as between the Omaha & Council Bluffs Street Railway Company and the City of Omaha the tracks of the Omaha & Council Bluffs Railway Company occupy Dodge and other streets?

Mr. BROGAN: The question calls for "yes or no" whether you know.

A. Yes.

Q. You may state by what authority, that is I mean by what sort of a contract, or agreement if any?

Mr. BROGAN: Complainant objects to the question as incompetent, irrelevant and immaterial and asking for a conclusion and opinion of the witness, and not the best evidence, of authority or of the contents of any written agreement.

A. They operate on that street by virtue of the authority given by the franchise of the Cable Tramway Company.

Q. Your Company claims then, to be rightfully upon Dodge Street maintaining your street railway lines and operating your cars by virtue of the franchise granted to the Omaha Tramway Company?

Mr. GROGAN: Objected to by complainant as incompetent, immaterial and irrelevant, as leading the witness, calling for a conclusion, and not the best evidence.

A. The Omaha Cable Tramway Company.

Q. Do you remember the date of that so-called franchies?

A. Yes sir, it was granted in 1888, and I think about the 8th of May.

Q. And has the occupancy of Dodge Street been continuous so far as the Street Railway Company is concerned since the original tracks were laid there?

A. Yes, it has.

Q. How many cars, if you know, cross the line of the Missouri Pacific Railway Company each day, I mean in a period of 24 hours?

82 A. We make 144 trips per day to Dundee, so that we would cross the track 288 times per day.

Q. You include everything going and coming back?

A. Yes, that is the ordinary week day schedule.

Q. Do you run double or single cars?

A. Double truck cars.

Q. What is the capacity of those cars?

A. The sitting capacity?

Q. Yes.

A. Forty. The rule is that a car will stand as many as it seats.

Q. State if you know personally whether your cars at times or occasionally, or regularly, carry as many as forty passengers at one time over those tracks of the Missouri Pacific Railway Company at that point?

A. They do at certain hours of the day.

Q. From what hour to what hour do your cars run on that line?

A. Run from 5.50 A. M. until 1.10 A. M. the following day.

Q. The village of Dundee that you mention, is located immediately west of the City of Omaha?

A. Yes sir.

Q. You may state what the fact is, if you know, whether a number of the residents of Dundee do business in Omaha, and make the trip to Omaha each day?

A. Yes, a very large percentage of the residents of Dundee come to Omaha daily to transact their business.

Q. And a portion, at least, of those residents travel to and from the city in the street cars of the Omaha & Council Bluffs Street Railway Company, do they?

A. Yes sir, the major portion of them.

Cross-examination.

By Mr. BROGAN:

Q. When did you come to Omaha, Mr. Leussler?

A. I came here December 1, 1902.

Q. And were you connected with the Company in any capacity prior to that time?

A. No.

Q. Where did you come from?

A. St. Louis, Mo.

Q. Your acquaintance with the Company and its business and its property began in 1902, did you say?

A. Yes sir.

Q. So that any knowledge that you may have as to the operation of the street railway on Dodge Street, or the ownership of any franchise or privilege on that street by any other company prior to that time, you have derived from a second hand hearsay, or from the examination of documents?

A. From the examination of records and documents.

Q. Do you mean the records in the possession of the present Company?

A. Yes sir.

83 Mr. BROGAN: Complainant now moves to strike from the record all that portion of the testimony of this witness relating to the possession of the franchise by the Omaha Cable Tramway Company, and the operation of a street railway on Dodge street by any company prior to 1902, for the reason that it appears that the testimony is hearsay and not the best evidence.

Q. Now, Mr. Witness, since you came here you have been acquainted with the fact regarding the operation of the street railway on Dodge Street?

A. Yes sir.

Q. Was there a double track on the street when you came here, all the way from Dundee to Omaha?

A. No, there was not.

Q. The first you knew of that there was a single track?

A. Yes sir.

Q. Operating how many cars a day?

A. My first knowledge there was one car per day operated. That was a stub car operated from 40th and Farnam out to Dundee and back.

Q. By what motive power?

A. Electricity.

Q. Was that furnished by the Omaha Company?
A. Yes sir.
Q. At that time?
A. Yes sir.
Q. And that single car was operated by the Omaha Company?
A. Not when I first came here. We took the line very shortly after that.
Q. Taking over the line from the former Company took place after you came?
A. Yes sir.
Q. And when you came here the Omaha Company was furnishing the motive power for the operation of that car?
A. On a rental basis, yes sir.
Q. Who were the managers of the old Omaha Cable Tramway Company, that was operating the cars when you came here?
A. Mr. Guy C. Barton was the President of the Company, and Mr. William S. Cox, was the Secretary of the company.
Q. Well, as a matter of fact, the Omaha Company, the predecessor of the present Omaha Company, had acquired an ownership and control of this Dundee line by ownership of its stock at the time you came here, had it not?
A. Why, whatever the deal was it had not been consummated at that time.
Q. That is it had not been legally consummated, but it had been practically consummated and the matter was in Mr. Barton's hands as a representative of the Omaha Company was it not?
A. That is about the way it stands.
Q. Mr. Guy C. Barton was a large stockholder in the Omaha Company?
A. Yes sir.
84 Q. And his holding, the entire control over the Dundee line, was simply in trust for the Omaha Company and not in his own capacity?
A. That is not strictly correct. Mr. Guy C. Barton and Mr. Frank Murphy, who was President of the Omaha Street Railway Company, and President of the Omaha & Council Bluffs Street Railway Company upon its organization, purchased that property and held it individually, but at the time of the organization here in December, 1902, when I came here, they had agreed to turn that property in here upon payment to them of the amount of money that they had paid for it.
Q. Now, you have in your possession, or your Company has, and you have access to them, all of the records relating to that original Omaha Cable Tramway Company?
A. Yes sir.
Q. Are they in Omaha?
A. Yes sir.
Q. Have you the original agreement between the City of Omaha and the Omaha Cable Tramway Company relating to that transaction?
A. Couldn't say without an examination.

Q. And have you the documents by which the Omaha Cable Tramway Company transferred its interests to the present Omaha Company?

A. Yes sir.

Q. And they are in Omaha?

A. Yes sir.

Q. Well, I will ask you to produce those two from your records so that they may be offered to the Examiner and copies of them put in the record—will you do that?

A. Yes sir.

Q. Now, Mr. Witness, those cars that are now in operation on the present double track are the large cars operated by electricity by means of a trolley wire, are they?

A. Yes sir.

Q. What is the length of the cars?

A. They are 41 feet over all.

Q. The seating capacity is 40 persons?

A. Yes sir.

Q. And in addition to that, very many passengers frequently stand in the center of the car during rush hours, and hold on to the straps?

A. Yes sir.

Q. So there may be as many as 80 persons in one car?

A. Yes, we can place 80 persons in a car.

Q. What is the weight of those cars?

A. With trucks and motors complete they weigh in the neighborhood of twenty tons.

Q. And with eighty passengers what would they ordinarily weigh?

A. Well, eighty passengers—the average weight of a passenger is estimated at 130 pounds; that makes an allowance for the proper proportion of women and children.

Q. That would make about 5 tons more?

85 A. Yes.

Q. Do you happen to know the relative quantity of traffic over west Dodge Street and across the Missouri Pacific, and how the general traffic other than the street car traffic compares in quantity with that of the street car traffic?

A. You mean the traffic of automobiles and wagons *and* etc.?

Q. Yes.

A. Well, of course, I have no figures on that—it is just general observation—but my observation, rather my opinion based on my observation, would be that we carry 90 per cent of the people on the cars.

Q. Ninety per cent of the passenger traffic, that is of persons passing in any form or conveyance over that crossing cross on the street car system?

A. Yes sir, I should say so.

Redirect examination.

By Mr. DUNN:

Q. Now you know personally, do you, that since 1902 this line of street railway has been operated along Dodge street?

A. Yes sir.

Q. And it was in operation when you came?

A. Yes sir.

Q. Now your cars are operated as through cars from the end of your line in Omaha near Riverview Park, to Dundee and make a loop and come back?

A. Yes sir.

Q. Now to get just what we want in the record; the fact is, is it not, Mr. Leussler, that the transfer, so-called, from the Omaha Cable Tramway Company, came by virtue of a consolidation between the Omaha Horse Railway Company and the Omaha Cable Tramway Company?

A. That is correct. Under an act of the Legislature.

Q. Let me inquire then, if you know, just briefly, from what corporation and individuals, and to what corporation was this line, the stub line running from 40th and Farnam to Du-dee, transferred to the present owners, the Omaha & Council Bluffs Street Railway Company, or the predecessor of that corporation?

A. There is a deed from the Metropolitan Cable Railway Company of Omaha, to Omaha Street Railway Company; and the Omaha Street Railway Company in turn deeded all of its property to the Omaha & Council Bluffs Street Railway Company.

Mr. BROGAN: Complainant objects to this statement unless it is accompanied by a copy of the documents referred to; otherwise, complainant moves to strike out the answer as not the best evidence.

86

Recross-examination.

By Mr. BROGAN:

Q. So far as you know, and as you understand it, the original single line track that was built from about 40th or 41st and Farnam or Dodge west to Dundee was built by the Metropolitan Cable Company—is that the correct name?

A. Metropolitan Cable Railway Company.

Q. Metropolitan Cable Railway Company, which was a small company that constructed that line and no other line in the city; is that correct?

A. Yes.

Q. And they were operating at the time their property was taken over by representatives of the Omaha Street Railway Company under whatever franchise rights they may have acquired from the city or from any other source?

A. Yes.

Q. And at the time that property was taken over, neither the present Company nor any of its predecessors, other than that Metropolitan Cable Railway Company had constructed any line of railway on west Dodge Street over the Missouri Pacific crossing?

A. That is correct.

Mr. BROGAN: Then what I want you to produce is the transfer

from the Metropolitan Cable Railway Company of Omaha to the Omaha Street Railway Company; that is all I want, just that one.

Document requested above is hereto attached marked Exhibit 6.

Mr. BROGAN: And also the right or privilege of the Metropolitan Company, if you have that. If you have a right to build there. I suppose it was by an ordinance.

Ordinance referred to last above is hereto attached, marked Exhibit 7.

Redirect examination.

By Mr. DUNN:

Q. Regardless of what right the Metropolitan Cable Tramway Company had to lay or operate tracks, as I understand you Mr. Leussler, and whether such right that was granted had expired or not, the claim of the Omaha and Council Bluffs Street Railway Company of its right to operate its cars and maintain its tracks on Dodge Street is claimed under a separate and different franchise?

Mr. BROGAN: That is objected to as not the best evidence, and as calling for an opinion and conclusion of the witness.

87 A. Exactly.

Q. Well you know, do you not, as Assistant General Manager of the Company, at least what the claim of the corporation is as to its franchise rights to operate cars and maintain its street railway in the City of Omaha?

A. Yes sir, I certainly do.

Q. Now, you may state, just to end this record, under what franchise, if any, the Street Railway claims that it is now operating its cars and maintains its street railway tracks on Dodge Street west to the City limits?

Mr. BROGAN: Objected to as not the best evidence, as calling for an opinion and conclusion of the witness.

A. Under the franchise granted to the Omaha Cable Tramway Company.

It is now stipulated and agreed by and between the parties to this case, that the franchise of the Omaha Cable Tramway Company referred to by the witness, consists of Ordinance No. 1731 of the City of Omaha, passed and approved May 10, 1888.

A copy of the same is hereto attached, marked Exhibit 8.

Witness Excused.

GEORGE W. CRAIG, a witness on the part of respondent, heretofore temporarily excused, at this time resumes the witness stand, and his direct examination by Mr. Dunn is continued as follows:

Q. Is it your understanding that the specifications of 1908 that have been offered here in evidence are the ones under which the Company is required to construct the viaduct?

Mr. BROGAN: Objected to as incompetent, irrelevant and immaterial, and asking for a mere opinion of the witness.

A. Yes.

Q. And you haven't gone over these various specifications so that you are personally now able to state the difference between the 1908 specifications and the 1910 specifications, have you?

A. No, Mr. Larkins has examined the specifications.

Q. Speaking of the plans, you may state what has been the construction and understanding of your department as to the two plans the original and alternate plans, as constituting the plans taken together for the construction?

88 Mr. BROGAN: Objected to as incompetent, irrelevant and immaterial, and calling for an opinion of the witness.

A. We understand that the two plans are to be taken together.

Q. Now, Mr. Craig, what do you know personally about Mr. Smith, the Engineer of the Missouri Pacific, or any of its officers, coming to your office, either voluntarily or at your request, and going over the plans and specifications at any time prior to the commencement of this suit?

A. Why, I do know that the officers of the Company were asked on two or three different occasions to come into our office and confer with me in regard to these matters. My first request was by letter to Mr. Loftis, who is their Agent here in the city, and who represented himself to me as being the one mostly interested in the Company's behalf. I wrote him a letter——

Q. I don't care so much about that now, but did either Mr. Loftis or Mr. Smith, or any other officer of the Company actually confer with you or go over the plans and specifications in your office at any time?

A. They did, after the plans were prepared.

Q. Who, and about what time?

A. Mr. Loftis upon one occasion, shortly after my encumbency in the office, Mr. De Bernardi, and also Mr. Smith.

Q. How often was Mr. Smith there at your office?

A. I couldn't say—Mr. Smith was in our office possibly two or three times, conferring with us regarding this matter.

Q. You may state whether Mr. Smith was shown the plans or specifications, or both?

A. He was shown the plans and also the specifications.

A. He was shown the plans and also the specifications.

Q. Now which specifications, if you know, were presented to him, that is the 1908, or those marked "Revision of 1909," your office revision?

A. I rather think it was the office copy that he was shown.

Q. Were you present and did you see Mr. Smith when he visited your office to examine the plans and certain specifications on or about the 21st or 22nd of April of this year?

A. I couldn't fix the date. It may have been that he visited my office and conferred with my clerk.

Q. Now you have examined these plans and specifications, have you?

A. Yes sir.

Q. Are you familiar with Dodge Street at 45th and 46th street?

A. I am.

Q. How wide is that street there, if you know?

A. Sixty six feet wide.

Q. Do you know how long Dodge Street has been open as a public highway—about how long?

89 A. Been open as far back as I can remember, and that is thirty years.

Q. Can you state, or do you know how long the line of street cars has been operated on Dodge Street and across 45th and 46th streets as far west as Dundee?

A. I can remember when it was operated as a horse line, and that must have been at least twenty five years ago.

Q. And then what is the fact as to whether it continued in operation from the time it was operated as a horse line, and has continued down to the present time?

A. I believe there was a slight interruption; it seems to me it was discontinued for a period of about a year or such a matter.

Q. How long has it been in continuous operation since it commenced or since the new operation was begun—that is, approximately—I don't expect it exact?

A. Oh, it must be at least twenty years ago.

Q. What is the fact as to Dodge Street being one of the main thoroughfares into the City from the west?

A. It is the main—one of the main thoroughfares.

Q. Does it join with what is generally termed the Dodge Street Road, leading out into the country from the west boundaries of the city?

A. It does.

Q. Do you know how far that road extends westward, and what kind of a road it is as to being a general country highway?

A. It extends clear out into the state. It parallels the Union Pacific Railway from a point near Elkhorn westward; how far, I don't know exactly, but as far as Kearney, I know.

Q. You may state whether or not that road is used for travel from and to the city?

A. It is.

Q. By persons in various kinds of vehicles?

A. It is probably used more than any other road leading into the city—main road.

Q. Is this road from the western limits of the city—this so-called Dodge Street Road—paved or macadamized any west of the city limits?

A. It is for a distance of at least ten miles.

Q. I will ask you if you know whether it is one of the lines that is frequented and traveled by automobiles?

A. It is.

Q. So you are, in a general way, familiar with the traffic over and along Dodge Street from the city limits eastward, are you?

A. Yes sir.

Q. Now you say that street is 66 feet?

A. Yes, sir.

Q. Paved street, is it?

A. Yes sir.

Q. You may state whether, in your judgment, a 24 foot roadway would be sufficient in case a viaduct should be constructed along Dodge street eastward from 46th street, whether a 24 foot roadway would be sufficient to accommodate the traffic on Dodge Street, including a doubletrack street railway?

90

A. I wouldn't think it would be wide enough.

Q. What would you say as to narrowing that street at that point to a 24 foot railway on the surface of the viaduct even if no street railway line was there at all; would that be feasible and proper, in your judgment, taking into consideration the future needs of the community and city?

A. I wouldn't consider it practical.

Q. Now, Mr. Craig, did you ever go over the plans with Mr. Smith at any time, the plans for construction of the viaduct, personally?

A. Yes sir.

Q. You may state whether or not you and Mr. Smith went over both plans or just one?

A. I believe we went over both plans—I couldn't say positively. We have always treated them as one plan, really.

Q. Do you know what the fact is as to the two plans having been sent to the City Council at the time of the approval, or do you know anything about that?

A. No, I do not.

Q. You simply have a copy of the letter in your office by which they were sent?

A. Yes sir, they were transmitted to the Council.

Q. What have you to say with reference to the feasibility or propriety, or rather whether it would be feasible to call for bids for the construction of the viaduct based upon the general plans and specifications adopted and approved by the Mayor and City Council?

A. It would be feasible, with this understanding, that the bidders were to submit complete detail plans in advance of the time set for the receiving of bids, taking sufficient time for thorough and critical examination of the plans as to their practicability in conformance with our specifications.

Q. Where the railroad company, as in this case, is required to build a viaduct according to general plans and specifications you may state whether there is any reason why a competent railroad engineer could not prepare detail plans and specifications for the construction of the viaduct in accordance with the general plans and specifications?

A. If he had all the information at hand in regard to the local conditions, he ought to be able to prepare the plans in thirty days.

Q. And what is the reasonable time required, if the railroad company concluded to let the construction, to a contractor, to advertise for and obtain bids in the ordinary way from contractors?

91 A. If the contractor had the full information before him he ought to be able to prepare his bid within two weeks.

Q. You are familiar, are you, with the method of constructing viaducts in the city of Omaha, similar to the one that is proposed here?

A. I don't quite understand your question.

Q. I will withdraw that and ask you this question; do you know as a matter of fact that the City has constructed or required viaducts to be constructed in a general way similar to this one?

A. Yes sir.

Q. What I want to inquire is, what has been the practice and method followed as to preparing general plans or detail plans in the first instance for the construction of viaducts?

Mr. BROGAN: Complainant objects to that as incompetent, irrelevant and immaterial for the reason that *is it* the law and the ordinance which must control this matter, and not some vague custom.

A. The general plans have heretofore been prepared by the City Engineer in accordance with instructions from the Council, and the detail plans by the railroad companies that are to construct them. I believe this to be true in all cases except that of the 11th street viaduct, which was built by an agreement between the City and the Railroad Companies.

Q. What, in your judgment, would be a reasonable time in which to construct a viaduct after the adoption of the general plans, and specifications, taking into consideration that the railroad company would be required to prepare detail plans and specifications for the construction, advertise for and obtain bids, let its contract and proceed with the construction?

A. Oh, six to eight months.

Q. Have you examined the ground, and are you familiar with the location of the proposed viaduct, and do you know where both the east and west ends of the viaduct are to be located?

A. I do.

Q. Mr. Smith speaks of the proposed viaduct being longer than necessary, by about 215 feet, contending that the 600 foot viaduct would be of sufficient length; you may state what your judgment is on that proposition, taking into consideration the location and the purposes of the city in requiring the construction of the viaduct?

A. In order to construct a viaduct of the length as suggested by Mr. Smith, it would make the grades of the approach in excess of what they should be for a structure to be used where the travel is of such a character as that which is traversing Dodge Street.

92 Q. Do you mean that the approach on the east end and west end of the 600 foot viaduct would necessarily be steep?

A. It would.

Q. And what is the fact as to whether at certain times in the year, and under certain conditions, the danger to public travel is increased, especially so far as street car traffic is concerned, on a steep grade on viaduct or street?

A. It would be dangerous.

Q. Would the grade to the viaduct, if confined to 600 feet, be steeper, for instance, than the grade of the 10th Street viaduct?

A. I wouldn't like to answer that question until I examine our records. I am not quite familiar with the grade of 10th street. I can get that information for you in a moment.

Q. What do you say as to whether the grade on the north end of the 10th street viaduct is safe or not as far as street car traffic is concerned, under different conditions?

A. I have not heard any complaint as far as street car traffic is concerned.

Q. Well, can you say now, Mr. Craig—state what, in your opinion, would be a proper length for a proposed viaduct on Dodge Street to accommodate the traffic on the street now, and future traffic, including street cars?

A. I would consider that the plan as offered by our Department shows a structure as short as it is practicable to build.

Q. Do you know the location of the so-called street or highway known as the Saddle Creek sewer right of way, east of 45th street?

A. I do.

Q. And you may state what the fact is as to where the end of the viaduct, as shown on the first plan, would be with reference to that street?

A. The first plan so showed the structure as to practically close the Saddle Creek sewer right of way.

Q. What is the width of that strip of property owned by the city in which the Saddle Creek sewer is constructed?

A. 60 feet.

Q. And according to the original plan, where would the abutment on the east end be with reference to that Saddle Creek sewer?

A. Be approximately 60 feet east of the east line of the Saddle Creek Sewer right of way.

Q. What is the fact as to whether or not the construction of the viaduct, as shown on the first plan, would close or in any way interfere with the use of this strip of land for street purposes, known as the Saddle Creek Sewer strip.

A. It would interfere with it. It would be impossible to use it for street purposes.

93 Q. And why, in what way would it interfere?

A. Block it in such a way that you could not get across.

Q. Then it would not leave room, or would it leave room underneath to cross under there with the full width of any portion of the street?

A. It would not.

Q. You may state what kind of a sewer is constructed in the middle of that, or in that street or strip of land?

A. There is a sanitary sewer now built in that strip of land. Plans are prepared and part of the system has been built for a large interceptor, and a part of this right of way in the purchase of it, was designed to use the strip, first for sewerage purposes, and the other for boulevard purposes—the surface for boulevard purposes.

Q. Now, the contention made by the Railroad Company, as I understand it, is that there is no necessity for a width of roadway of thirty five feet. What is your judgment with reference to that, and why, in your judgment, should it be 35 feet, if that is your judgment, as shown by the plan?

A. My judgment is that it should be 35 feet in width. The street at present, between curbs is 40 feet. To narrow down the width would congest the traffic, making conditions entirely different from what we now have on the street. If the structure was narrowed down to an unreasonable width it would necessitate the slowing up of traffic; one would have to follow the other, and it would retard the traffic and would not give them the space which they are entitled to, and which they are now using on the street.

Q. What have you to say as to the criticism and complaint of the railway company as to the depth of floor; that is the contention that the viaduct could be constructed with a depth of floor of two feet instead of seven feet?

A. It is merely a constructional feature, either design would be acceptable.

Q. Well, suppose as contended by Mr. Smith, that the depth of floor should be reduced from seven feet to two feet, would it then be feasible to reduce the length of the viaduct by 150 feet, taking into consideration the location, and this strip of land owned by the City and now used for sewer, and in contemplation for boulevard or street purposes?

A. The contention might be feasible as far as the west end of the structure is concerned, but I question it as to the east end.

Q. If it should be reduced, that is if the length should be reduced 150 feet, where would that leave the east end with reference to this 60 feet of land owned by the City where the Saddle Creek sewer is located; that is, would it be possible to construct a viaduct according to Mr. Smith's idea 150 feet shorter than the proposed viaduct and have the east end located where it would not interfere
94 with the Saddle Creek sewer, or with that 60 feet of land owned by the city?

A. That would depend somewhat on the grades that might be fixed for the Saddle Creek sewer right of way. If the grades were made to coincide with the grades of Dodge Street, a shortening of the viaduct would be impracticable.

Q. And could the viaduct be shortened according to Mr. Smith's plan or proposition to the extent of 150 feet, without increasing the grade of the approaches to the viaduct?

A. By reducing the height of the structure or the depth of floor, yes sir.

Q. I put that on a basis of a two foot floor rather than a seven

foot floor, could the length then be reduced on that basis without increasing the grade of the approaches?

A. It can.

Q. What do you say, Mr. Craig, as to whether it would be feasible and proper to increase the grade on the approaches to the viaduct over what is shown on the plans?

Mr. BROGAN: That is objected to as incompetent, irrelevant and immaterial, and asking for a mere opinion as to what is proper, and not asking for an engineering fact.

Q. Just add to that, I mean whether, in your judgment, it would constitute a safe, feasible and proper grade for public travel over the viaduct.

Mr. BROGAN: That is objected to as incompetent, irrelevant and immaterial and asking for a mere opinion as to what is proper and not asking for an engineering fact.

A. I consider the grade as fixed by this plan as being the maximum grade that we should consider for a viaduct of this character.

Q. Referring to the testimony of Mr. Smith in which he stated that the plans show openings through the floor of the viaduct so as to permit the debris and accumulations to go through on to the steel girders, which would cause deterioration to be more rapid than ordinary, what do you say about that?

A. These plans were designed only as a preliminary plan, and they are void of any details, and the question of care of this matter—it is recognized on the plans that it must be cared for—but the question of the manner or way it shall be cared for is a matter that is left for detail.

Q. Is it contemplated or was it contemplated under this plan that the openings of which Mr. Smith complains should be in the floor of the viaduct when completed?

Mr. BROGAN: That is objected to as incompetent, irrelevant and immaterial, and for the further reason that if this complain-
95 ant is to be compelled to build a viaduct under this ordinance, it can only do so under the plans prepared and approved and made of record, and not under the intentions existing in the mind of the City Engineer.

A. No sir.

Q. Calling your attention to the requirement in the specifications, 37-A, the requirement being one hundred and fifty pounds per square foot for live load, what do you say about that Mr. Craig?

A. Which do you have reference to now, the roadway or the sidewalk?

Q. The roadway?

A. I don't believe that one hundred and fifty pounds is an unusual requirement.

Q. What do you say then as to one hundred and fifty pounds per square foot so far as the sidewalk space is concerned?

A. I believe that they could be so modified as to admit of one hundred pounds.

Q. Your revised specifications show that as to the sidewalks, do they not?

Mr. BROGAN: Complainant objects to that as not the best evidence as to what the revised specifications show.

A. It was intended in our revised specifications, to make the sidewalk load one hundred pounds.

Q. If that is what it meant, so far as your office copy is concerned, as shown by your pencil marks, I suppose that is what you meant?

A. Yes sir.

Q. Then what do you say is true as to the specifications that have been introduced, approved in 1910, as to the requirement in those specifications as to the sidewalk being an oversight and error?

Mr. BROGAN: Complainant objects to that as incompetent, irrelevant and immaterial; for the further reason that in this case the Railroad Company cannot be charged with the duty of making a construction based upon knowledge of an error existing in the minds of the city officials, and not shown by the records.

A. The office copy of the specifications show one hundred pounds per square foot; the copy as approved by the city council, by typographical error shows one hundred and fifty pounds.

Q. Now, Mr. Craig, calling your attention to the requirement as to roadway sufficient to carry a thirty five ton street car, or rather two thirty five ton street cars, end to end on each track, as
96 provided in the specifications, you may state what your judgment is about that requirement as to its being excessive or otherwise?

A. I would not consider that an unusual requirement. This condition may exist; while the cars of the present day are possibly a little lighter, yet the cars are constanly increasing in weight.

Q. Do you know what the fact is, Mr. Craig, as to the custom and the requirements in the City of Omaha at the present time, in reference to viaducts that have been constructed by the City and railroads, upon which a double track street car line is in operation, as to the size and requirements; directing your attention more particularly to the 10th Street viaduct, the 16th Street viaduct, and the 24th Street viaduct—the question is, can you tell us that now?

A. No, I do not have at hand the specifications for those different structures.

Q. Can you get the specifications under which those structures were built?

A. Yes sir.

Q. You may state whether there is a double track street railway in operation on the 10th Street viaduct?

A. Yes sir.

Q. And 16th and 24th?

A. Yes sir, on all three of them.

Q. How recently were the 10th Street, the 16th Street and the 24th Street viaducts constructed; that is, approximately?

A. I think the 10th Street viaduct has been in existence, roughly speaking, 16 years—about that. The 16th Street viaduct, as it now exists 10 to 12 years.

Q. And the 24th Street viaduct?

A. And the 24th Street viaduct about 8 years.

Q. What have you to say with reference to the allowance for the effect of impact as to its being recognized as proper construction?

A. The question of impact is a point upon which engineers differ somewhat. Most engineers take it into consideration. As to the percentage, they seem to differ.

Q. What do you say as to the reasonableness of a requirement of 50 per cent, as you have required in these specifications, for the effect of what is known as impact?

A. I do not consider our specifications, so far as impact is concerned, to be unreasonable. It is possible that 50 per cent may be slightly in excess of requirements.

Q. What has been the experience, Mr. Craig, of the City of Omaha, so far as the construction and use of viaducts for general traffic and street car traffic, as to whether they have been
97 found sufficient or insufficient requiring strengthening and repairing, referring particularly to the 11th Street and the 16th Street viaduct?

A. The 11th Street viaduct has been strengthened at different times, and is closed at the present time pending strengthening. There have been no repair or strengthening to the 16th street viaduct, but notices have been served by the Managers of the respective railway company who constructed the structure directing our attention to the fact that the street railway loads that are now passing over the viaduct are in excess of the loads that should be allowed.

Q. Well, what is the fact as to whether the street cars passing over the 16th Street viaduct are the same general character and size of the cars that are operated on Dodge Street?

A. The general make up of the cars is alike in all excepting the Council Bluffs cars, which are seldom used on our tracks.

Q. Is the 16th Street viaduct a steel structure?

A. It is.

Q. Constructed by the railroad companies themselves?

A. Yes sir.

Q. What railroads?

A. The Union Pacific, The Burlington, and I believe that the Rock Island or the Illinois Central had a small proportion to pay—I don't know just what it is.

Q. Do you know as to the relative strength of the 16th Street viaduct, as compared with the proposed viaduct on Dodge Street?

A. I do not, without referring to those specifications.

Q. Can you get those specifications later on?

A. Yes sir.

Q. You may state if you have those written notices from the

managers of the railroad corporations complaining of the size of the load crossing the viaduct in the form of street cars?

A. They are a matter of record in the City Clerk's office.

Q. Mr. Smith spoke of poles for street cars and lights; what is the fact as to there being anything in your specifications, or in the plans, so far as your construction of the same is concerned, that would require the Railroad Company to furnish either poles or light or street car service?

A. It was not intended that the railway company was to furnish those poles. They have — been required to do it heretofore; I don't see why they should be now.

Q. Have you estimated or do you know what the cost of the structure as outlined in the plans and specifications will amount to approximately?

98 A. Only just roughly, and the figures stated by Mr. Smith are not unreasonable. I should say somewhere about $75,000 or $80,000 in that neighborhood.

Q. Mr. Smith complains of the span that crosses the track being only forty feet in length rather than forty two feet, therefore not leaving room for a side track on each side of the main track the standard distances; what have you to say about that?

A. That is just merely a constructural feature. The span may be made considerably longer if it is required.

Q. This span as it is is sufficient to carry the viaduct over the present tracks of the Company in the street without interfering with them?

A. It is.

Q. You haven't any way of knowing, I suppose, how many additional side tracks the Company might want to put in the street at some future time?

A. No sir.

Q. You say it can be lengthened if so desired; that is a mere matter of construction?

A. Yes, sir.

Q. Detail?

A. Yes sir.

Q. And from your viewpoint there would be no objection on the city's part to an additional length of two feet?

A. None whatever.

Q. That would be just as practical one way as another would it?

A. Yes sir.

Cross-examination

By Mr. BROGAN:

Q. The original plans for the construction of the viaduct were prepared by the City Engineer's office when Andrew Rosewater was City Engineer, I understand you to say?

A. Yes, sir.

Q. Were you employed in the office at that time?

A. I was not.

Q. Not connected with the office?
A. No sir.
Q. And the alternate plans that have been offered in evidence here were prepared by the City Engineer's office while Mr. Ayerigg was City Engineer?
A. Yes sir.
Q. Were you connected with the office at that time?
A. I was not.
Q. When you say that these two plans were intended to be used together, you are simply giving your judgment as an engineer from what appears on the face of them?
A. Yes, sir.
Q. The same as Mr. Smith or anybody else?
A. Yes sir.
Q. Not from any knowledge that you acquired in the City Engineer's office at the time they were being made?
A. No sir.
99 Q. You were under the impression first that the alternate plans was the only plan that was approved or intended to be used in this matter?
A. Yes sir.
Q. That was your first impression of this matter?
A. Yes sir.
Q. And in the affidavit that you made for use in this case on the first hearing you were going at that time under that impression, were you not?
A. Yes sir.
Q. And some of the statements you make there, meeting Mr. Smith's affidavit, are based on the supposition that there was only one plan here, and that was the alternate plan, was it not?
A. Well, I would have to refresh my memory by going over the affidavit—I don't remember.
Q. And also, in making the affidavit you were under the impression that there were revised specifications adopted by the City Council later than the 1908 specifications.
A. Yes sir.
Q. But as a matter of fact, the City Council never did adopt any later specifications, either general or special, until the revision that was adopted July 13th, 1910 was adopted?
A. That is the only thing I can find.
Q. And in the Ordinance, No. 7072, which is set forth in the pleadings in this case, and is the one ordering the Missouri Pacific to construct a viaduct, it is stated that it shall be built according to plans and specifications prepared by the City Engineer, on file in his office, and heretofore approved by the Mayor and City Council of said City; can you state now what specifications are referred to in that Ordinance?
A. In the absence of any other specifications it seems to me it is the ones of 1908.
Q. Then, as a matter of fact, there were no specifications prepared

and presented to the Council for approval for use in the construction of the Dodge Street viaduct?

A. I am unable to find any specifications of that kind specifically for the Dodge Street Viaduct.

Q. Calling your attention to a resolution of the City Council from the original files of the City Clerk's office, introduced by M. F. Funkhouser, and passed January 26th, 1909, approved February 1, 1909, by the Mayor, I will ask you to state whether you were in the City Engineer's office at the time that resolution passed?

A. I was not.

Mr. BROGAN: Complainant asks that this original resolution be identified, and now offers the same in evidence as Complainant's Exhibit No. 9 and that a copy of the original be substituted for the purposes of this record.

100 Complainant's Exhibit No. 9 as above described is received in evidence without objection, and a copy of the original thereof is hereto attached and substituted for said original for the purposes of this record; all of which is done without objection.

Q. Do you know whether any action was taken under that?

A. All the information I have is the records of our office, which show a letter of former City Engineer Andrew Rosewater under date of March 9, 1909, addressed to the Honorable Mayor and City Council. Do you want me to read that letter?

Q. Well, refer to it, so that we can offer it in evidence if we want to.

A. The letter reads as follows: "In compliance with concurrent resolution No. 344——

Q. No, I don't want you to read the whole letter into the record—you say there is a letter from City Engineer Rosewater?

A. Yes sir, this is a copy of the letter.

Q. Well, now, referring to this letter from City Engineer Rosewater to the City Council of March 9, 1909, that of course was prior to the time that Mr. Ayerigg prepared the alternate plans?

A. Yes sir.

Q. And were the plans of the viaduct transmitted to the Council at that time, what we call here the original?

A. Yes sir.

Q. And the comments on the plans in the letter of Mr. Rosewater, indicate that he was referring to the original plans?

A. Yes sir.

Q. You have read this letter?

A. Yes sir.

Q. And it would seem from the letter that he was referring to the original plans?

A. Yes sir.

Mr. BROGAN: Complainant now offers in evidence, as a part of the cross-examination of this witness, the letter referred to marked Complainant's Exhibit No. 10.

Complainant's Exhibit No. 10 is hereto attached.

Q. Now, Mr. Craig, so far as you know, was there ever any approval of the original plans prepared and presented by Engineer Rosewater by the City Council?

A. I have been unable to find the approved plan. It may be a matter of record in the Clerk's office, but so far they have been unable to unearth it. This letter would indicate that it was probably transmitted to the City Council, and a search of the Journal would show the approval of it if it was approved.

Q. So far, have the City Officials been able to find any record of the approval of the original plans?

101 A. I have been unable to find the approved plans.

Q. Or any record of an approval?

A. As I said a moment ago, as far as I know, no search of the Journal has been made to determine that point.

Q. You transmitted — to the Missouri Pacific Railway Company accompanying the plans of the viaduct, did you not, subsequent to the passage of the Ordinance ordering the viaduct to be constructed?

A. No, I did not.

Q. I understood you to say this morning that you did?

A. No, I don't think I did. I have no recollection of mentioning that. I know I have transmitted at various times plans of the viaduct to different officials of the road, but not by letter.

Q. I thought you said by letter?

A. I have no recollection of a letter.

Q. Perhaps without writing a letter you did transmit the plans?

A. Yes sir.

Q. And in doing that did you submit both the original and alternate plans as the plans of the viaduct?

A. Yes sir.

Q. Are you sure about that, whether you sent them both or only one?

A. I may not have sent them; I gave them to Mr. Smith in one instance—he got both plans.

Q. Now what I am getting at is, did you at any of these times transmit to the Railway Company or any of its officials a certified copy or any copy of specifications to be used in the construction of the viaduct?

A. No sir.

Q. You state that the 1908 specifications were to be used, and you mean the original 1908 specifications, as approved by the City Council?

A. Yes sir.

Q. And not the unofficial revision of them in 1909, which you say never was approved by the City Council—is that right?

A. Yes sir.

Q. The alternate plan of the viaduct is not complete in itself, is it, and does not contain sufficient information?

A. It does not.

Q. And on its face it is not intended to be complete?

A. No sir.

Q. And is to be used by reference to the original?

A. It is.

Q. Do you know when it was that the present operating Street Railway Company constructed its double track across there?

A. Why the double track was constructed just a short time prior to the paving of the street, which was about 4 or 5 years ago.

Q. And, as a matter of fact the old track was thrown away and two new tracks laid, one on each side of the center of the street at that time?

102 A. Well, there was a heavier construction, yes sir.

Q. So that meant the rejection of all the old track, did it not?

A. Well, I couldn't say positively. It may be the old crossing was used—no I don't suppose it could be used—I rather think it all was renewed, yes sir.

Q. All relaid?

A. Relaid, yes sir.

Q. A new double track street railway laid there and the old one, that was in the center, taken out and removed?

A. Yes sir.

Q. Mr. Craig, wouldn't a viaduct 24 feet wide on Dodge Street crossing the Missouri Pacific Railway, be large enough to carry the ordinary street traffic, if there was no street railway system there?

A. It probably would, if you would place some restrictions around the traffic.

Q. There would be room for three ordinary vehicles to pass each other in such a roadway, would there not?

A. Yes sir.

Q. That is there could be a regular traffic following each other in the same direction, and the traffic lined up coming in the other direction, and a passing space between the two?

A. Yes sir.

Q. And what special restrictions would there need to be to handle the ordinary and actual traffic in a suburban street of that kind?

A. If the travel was considerable, which it is at times, necessarily teams would have to follow each other, and if the teams in advance of the others were slow the others necessarily would have to slow down and take their turn. As it is on the street as it now exists, it being 40 feet in width, they can turn out either way and the team in advance of the other would not retard them any length of time.

Q. In order to turn out on the present street they would have to go on the street car tracks?

A. Yes sir which they can do.

Q. Which of course they can do unless there is a street car passing?

—. ——.

Q. They would have a clear space of 8 feet in the center to turn out in; a rapid going vehicle could turn out in the center and pass a slow going vehicle going in front of it?

A. Yes sir.

Q. They could do that unless the vehicles followed each other so close that there was no space between any of them?

A. Yes sir.

Q. That is a condition of traffic that never exists out there isn't it Mr. Craig?

A. Well such things have existed at times.

103 Q. You mean somewhere, but not on Dodge Street?

A. I have in mind an instance of last year. There was a function at the Happy Hollow Club and the street was just blocked with traffic. Of course those are only occasional instances.

Q. Those are very seldom?

A. Yes, sir.

Q. On such occasions, even then, it will take care of the traffic by having one stream of vehicles coming in one direction and another going in another direction?

A. Yes sir.

Q. And there would be no obstruction if they are all going at the same speed?

A. If they are all going at the same speed.

Q. That is not a serious obstruction for a distance of five or six hundred feet, is it?

A. Oh, it is a question of how serious it is—I am not prepared to say.

Q. Well, of course, that is a matter of opinion; but the traffic could get along and be easily accommodated with a 24 foot roadway under the ordinary conditions?

A. I believe the traffic could get along, yes sir.

Q. There are some places in Omaha on some of the streets where the space is not over 30 feet between curbs aren't there?

A. Yes sir.

Q. That provides for traffic where there may be vehicles stopping and standing at the curb, carriages waiting in front of residences, or delivery wagons, or any other vehicle that may see fit to stop at the curb?

A. Yes sir.

Q. Thirty feet is considered sufficient for traffic under such conditions?

A. That is where there are no street car tracks.

Q. Where there are no street car tracks thirty feet is ample for the distance between curbs on surface streets where it is the custom to stop at the curb and obstruct a part of the street, is it not?

A. Yes sir.

Q. So that on the top of the viaduct in the suburbs, where there is no occasion for stopping at the curb at all even a narrower roadway would be sufficient, would it not?

A. If there were no street car track.

Q. I am assuming that all the time, my question is all based on the supposition that there are no street car tracks.

A. Certainly.

Q. Of course, if there were street car tracks on a 24 foot viaduct it would be necessary for the street cars and the vehicles to use the same space?

A. Certainly.

Q. But my question is directed to streets where there is no street

car traffic. Now, with reference to getting out the detail
104 plans; it was not your understanding was it that the railway company would go ahead and get out its own plans, and either get bids on them or build it themselves on such plans without first submitting them to you and the City Council for approval?

A. No sir.

Q. It was your idea that before building this viaduct the Railway Company should itself draft its detail plans and such additional specifications as might be needed?

A. Exactly.

Q. And submit them to you in the first instance for approval?

A. Yes sir.

Q. And you would thereupon, if you found them satisfactory, approve them and send them to the City Council for approval?

A. Yes sir.

Q. And on approval by you and the City Council, then for the first time the railroad company could commence the construction of the viaduct?

A. Exactly.

Q. But you do not contend that there is sufficient in the plans that were furnished, and in the general specifications of the year before to enable the construction of a viaduct under the ordinance without further action by the City Engineer and City Council?

A. No sir.

Q. And if the Railway Company should prepare detail plans and specifications that were not approved by you, or not approved by the City Council, of course they could not go on with the construction until they did finally prepare plans and specifications that met with your views and with the views of the City Council.

A. Yes sir.

Q. If you and the Engineers of the Railway Company should differ as to the construction of these general plans and general specifications and as to what might be permissible under them, that would retard the construction of the viaduct until that question was settled by you and the City council?

A. Yes sir.

Q. But the Ordinance ordering the construction of this viaduct provides that it shall be built "according to plans and specifications heretofore approved by the mayor and City Council of the City?"

A. Well, I interpreted that to have reference to the general plan and general specifications.

Q. I understand that where a general plan is proposed for a structure of this kind, and bids are called for on such general plans, it is not permissible for a bidder to bring in his plans and specifications with his bid, is it?

A. That would depend entirely upon your form of advertisement, or your form of proposal, which is generally provided by the party receiving the bids. Invariably they would ask for submission of plans in advance so as to have opportunity to check them over, or
105 else reserve to themselves the making of the award until a later date until they had time to investigate the plans.

Q. In other words, there would be—there would have to be

an interval between the receipt of the detail plans and specifications before the bids could be intelligently passed upon, certainly.

A. Certainly.

Q. Now you have told of other instances in which other railroads and the city have gone along together and assisted each other in getting out the plans, and the railroads have, by agreement, constructed the viaduct in that way; is that what you had in mind in your answer to Mr. Dunn's question?

A. Yes sir.

Q. Well, suppose that the engineers of the Missouri Pacific Railway Company had provided detailed plans and specifications for a viaduct 600 feet long and a roadway 24 feet wide, without any provisions for a space for street car tracks, and of sufficient strength of construction to sustain the ordinary street traffic, including an ordinary 15 ton steam roller, but not sufficient to carry the traffic of thirty five streets cars; would you have approved such detailed plans and specifications for the construction of that viaduct?

A. I would not have.

Q. You would not?

A. No sir.

Q. Suppose they had produced detailed plans and specifications for the full length specified in the alternate plans of about 810 feet, and a width of thirty five feet but not of sufficient strength to sustain the traffic of the street railway company, although it would have sufficient strength to sustain the ordinary street traffic, would you have approved of such plans?

A. I would not.

Q. The original plans prepared by Mr. Rosewater provide for a length of 695 feet do they not?

A. Yes sir.

Q. Of which the steel work is 520 feet and the masonry 175 feet, and that brings the masonry and the end of the viaduct substantially in the front of the place where the Saddle Creek sewer is constructed?

A. Yes sir.

Q. Now, your purpose—Oh, you didn't prepare the other one, as I understand it?

A. No sir.

Q. You understand that the purpose of lengthening the viaduct, as shown in the alternate plans, was to leave an open space under the viaduct along the right of way of the Saddle Creek Sewer, so that if that should be adapted to a boulevard hereafter, the boulevard traffic could go along under the viaduct and under the traffic of the Street Railway Company?

A. Yes sir.

Q. Now, Mr. Craig, in the original plans, what are the grades shown on the viaduct?

106 A. Six and two tenths per cent.

Q. Six and two tenths per cent on the east and on the west?

A. Yes sir.

Q. And in the alternate plans there is a six and two tenths per cent grade at each end?

A. Yes sir.

Q. And beginning about the Saddle Creek Sewer and running up to the center there is a grade of about three and one quarter per cent?

A. Yes sir.

Q. Do you know what the present grade of Dodge Street is both west of the railroad and east of it?

A. I do not off hand; I can determine from our records (witness gets a profile map) at what part of the street on Dodge street do you have in mind?

Q. In the first place, taking the place west of the railroad track, from the railroad track to 46th street?

A. The rate of grade is approximately 5%—very close to 5% grade.

Q. And what is it east of the railroad track at different points—just name its grade at different points from the Saddle Creek Sewer up to 40th street?

A. From the Saddle Creek Sewer to the railway track the rate of grade is a trifle over 1%; and from the Saddle Creek Sewer to 44th street the rate of grade is close on to 5%.

Q. And from 44th street to 40th street—just give the steepest single grade between 44th and 40th?

A. About 5 per cent.

Q. What is the grade on Dodge Street down town between 17th and 20th?

A. 11 per cent.

Q. What is the grade on the north end of the 10th street viaduct?

A. 5 per cent.

Q. Now, Mr. Craig, in both the original and alternate plans there is a provision, is there not, for raising the grade on 46th street, so as to accommodate the grade there to the west end of the viaduct?

A. There is.

Q. How much of a raising of the grade is there there at that point?

A. Approximately two feet, two or three feet or such a matter.

Q. Now, could not a similar change be made at the east end of the viaduct, raising the grade of Dodge Street where the Saddle Creek right of way crosses it, two or three feet, and begin the east end of the viaduct there and carry it over the tracks with proper clearance, at a grade of not over 6.2 per cent?

A. It is possible, with this exception; if the City of Omaha in finally deciding as to what they will do with the Saddle Creek Sewer line—if they would make a grade that would conform to the surface, or a grade that would be two feet higher than the
107 present surface, that could be done. On the other hand, if they would make a subway or crossing down underneath by excavating to fit the contour of the country on either side it could not be done. In other words, Dodge street is raised up and all lots lying on both sides are considerably lower.

Q. Well, except for the desire which might hereafter exist to make a subway drive above the space occupied by the Saddle Creek sewer there is no other objection to raising the grade of Dodge street at

the point of intersection with the Saddle Creek sewer two or three feet and producing a viaduct with a grade of not more than 6.2 per cent beginning west of the Saddle Creek Sewer, is there?

A. Well, there would be no objection except that of the property holders.

Q. Oh yes, and they might be differently damaged?

A. Yes sir, but they couldn't change the grade without the consent of a majority of the property holders. We would be powerless to change the grade without their assistance in the matter.

Q. How could it be arranged at the west end of the viaduct?

A. The same way there.

Q. Their consent would have to be gained?

A. Yes sir.

Q. Don't you think that the power given to the City Council to construct a viaduct and to pay damages to the abutting property owners, includes the power to make whatever change is necessary to make a suitable viaduct?

A. That is a question that I have never thoroughly settled in my own mind.

Q. That is a question of law?

A. It is a question of law, changing the grade.

Q. Then the only objection that you know of to adopting the viaduct in the manner Mr. Smith has described is simply a question of law that may arise with reference to the rights of the property owners?

A. Yes sir.

Q. Otherwise it might be done, as an engineering proposition?

A. Yes sir.

Q. One more question as to the grade of Dodge Street. I will ask you what are the grades east of 40th street on Dodge, the present grades?

A. The grade between 39th and 40th Streets is about 8 per cent.

Q. From 38th to 39th?

A. 7%.

Q. Those are both paved streets?

A. They are.

Q. Paved to that grade?

A. Yes sir.

Q. Do you know with what material?

108 A. Sheet asphaltum.

Q. If you take those two plans together, the original and alternate, this typical girder construction is a part of the original plan is it not?

A. Yes sir.

Q. And would control in the making of detail specifications, and in the construction of the viaduct?

A. Yes sir.

Q. Well then, you are also mistaken about that in your affidavit when you said it did not require that type of construction were you not?

A. Well now, if they were to submit a plan for the other type of

construction, so long as it complied with our specifications so far as its loading is concerned, there would be no objection on our part.

Q. You mean you, as City Engineer, and the City Council on your advice, might finally approve a plan of construction with detail plan which would not follow these original plans, is that what you mean?

A. Yes sir.

Q. And in doing so, they would be departing from one of the requirements of the original plan, would they not?

A. Yes sir.

Q. The same is true as to the 40 foot space for the railroad track, and its two side tracks that might be needed there; while detail specifications might be approved providing for such a space, that also would be a departure from the original and alternate plans approved by the City Council?

A. It would.

Q. Your statement simply is that you think such changes would be authorized when the time came, that is what you mean, is it?

A. Yes sir.

Q. And a cutting off of five feet from the depth of the floor would permit a shortening of the viaduct at the west end, and preserving the same grade, would it, and it would justify considerable shortening at the east end?

A. Yes sir.

Q. If it were not for the Saddle Creek Sewer?

A. Yes sir.

Q. And if the cutting off of the extra floor depth of five feet, and the carrying of the 6.2 per cent grade all the way from the highest point to the east end, and the raising of the grade on Saddle Creek two or three feet, all combined together, would permit of a construction as short as Mr. Smith has pointed out, that is about 600 feet, would it not?

A. Yes sir.

Q. Now with regard to the sustaining strength of the structure; the question of having 150 pounds per square foot or 100
109 pounds per square foot in the roadway is not, as I understand it, a material consideration if the viaduct is also to have a requirement for a thirty five ton street car—is it?

A. Yes, it is.

Q. Well, wouldn't the requirement of a thirty five ton street car, placed end to end across the viaduct, two lines of them, be greater than 150 pounds per square foot?

A. You have reference now to cars end to end, and the span full of cars, or do you have reference to just four cars?

Q. I have reference to the requirements of your specifications for a strength necessary to sustain the street cars—wouldn't that exceed 150 pounds per square foot in the roadway anyway; you so stated in your affidavit, Mr. Craig, I think we will all agree on that?

A. I haven't read over the affidavit recently it is not fresh in my mind.

Q. If we have to build for the street railway a requirement for the street railway would exceed 150 pounds anyway?

A. Yes sir.

Q. But the requirement of the pounds per square foot for the sidewalk would be independent for any requirement of the street cars in the roadway would it not?

A. Yes sir.

Q. Would be sustained separately?

A. Yes sir.

Q. There isn't any doubt but that the 1908 specifications called for 150 pounds per square foot on the sidewalk as well as in the roadway?

A. No sir.

Q. And the only change in that is the proposed change indicated by the lead pencil interlineation?

A. Yes sir.

Q. Which was never presented to the City Council or approved by it?

A. No, it was not.

Q. So to build the viaduct in the manner required by the ordinance and the existing official plans and specification- would require a strength of 150 pounds per square foot on the sidewalk?

A. Yes sir.

Q. Now to shorten up this matter, Mr. Craig, you would not, as a civil engineer, make any such requirements for a viaduct either as to width or strength if you were building for the ordinary street traffic and not for a street railway traffic, would you?

A. No sir.

Q. And do you agree in the main with Mr. Smith's figures in that respect as to the percentage of increase in strength and cost required by a structure for the street railway company?

110 A. I haven't had opportunity to go into the details, but I have no reason to question them.

Q. You are not prepared to question the accuracy of his computation with reference to the relative cost of the viaduct constructed for ordinary street traffic and one constructed for street railway traffic?

A. No sir.

Q. And, of course, Mr. Craig, if there is to be no street car on the viaduct there is no necessity of adding 50 per cent or any per cent for the effect of impact?

A. I am not prepared to say that there would be no allowance made for impact. There would no such large percentage.

Q. If any it would be very small?

A. Yes sir.

Q. There is no effect of impact by ordinary vehicles drawn by horses, is there?

A. That is a pretty fine haired question. A team of horses being driven across there at a rapid gait would cause a certain amount of impact.

Q. But the percentage to be allowed for a team of horses would be on the strength necessary to sustain that conveyance and that is

so small that you don't get up within a measurable distance of a steam roller, do you?

A. It is a pretty fine haired point.

Q. As a matter of fact, you wouldn't put that requirement in if you were making the bridge for ordinary street traffic?

A. I think to be on the safe side that I would, but I would reduce the percentage.

Q. You would not put in any such amount as 50 per cent?

A. No, not in excess of possibly 10 per cent.

Q. Now I understand you to day that the other railroads have protested against the city allowing the traffic of these large street cars to go on and over the viaducts if the railroad companies are to be expected to continue to maintain them—is that the effect of their protest?

A. Substantially yes—that is only as to the 16th street viaduct. As far as the 24th street viaduct is concerned that is amply built to take care of anything of that kind; the spans are the spans used by the Company themselves out on their main line and were taken down and put up there.

Q. Do you know in what way this question of leaving part of Dodge street still open to traffic arose—that is an unusual condition, is it not?

A. Yes, you mean the roadway along on the side?

Q. Yes, that condition does not obtain in any other viaduct in the city, does it?

A. It does so far as the 16th Street and 10th Street viaducts are concerned, they drive along both sides and under it.

111 Q. But the structure of the viaduct in those cases occupies substantially all the center of the street, does it not?

A. That is true so far as 10th Street is concerned, but not 16th.

Q. Well, isn't the viaduct closed to surface traffic at either end of 16th or 10th?

A. On 16th Street it is closed to the traffic only on the west side, that is local traffic. It could have been opened clear through and it was prior to the construction of the Great Western terminals. On the south end of the 16th street viaduct the embankment of the Burlington Railway Company is all that would prevent us from traveling along there.

Q. As a matter of fact there is no through traffic on the surface?

A. No sir.

Q. Either on 10th or 16th?

A. No sir.

Q. It is simply traffic in and out to the abutting property covered by the viaduct?

A. Yes sir.

Q. As a matter of fact, in the proposed plan of construction on Dodge Street at 45th, the plan is to leave the portion of the street outside the structure and to the north of it open for travel to the general public, isn't that the way you interpret the plans?

A. Yes sir.

Q. And accessible from Dodge street east and west of the viaduct?
A. Yes sir.
Q. So there would be nothing to prevent all the traffic that now goes on Dodge Street other than the street railway from going across the railroad tracks at grade, would there?
A. No sir.
Q. And the automobiles owned by the wealthy owners thereof who live in Fair Acres could, if they saw fit, cross the railroad tracks on the surface after the construction of this viaduct?
A. Yes sir.
Q. The same is true of all other vehicles that now travel there, except the street railway?
A. Yes sir.
Q. And whatever danger exists now of collison with the passing trains and with vehicles of all other traffic except the street railway company's traffic would continue, or might continue just the same after the construction of this viaduct, might it not?
A. If people saw fit to drive there.
Q. And the difficulty and danger would be considerably increased by the narrowness of that driveway, and the existence of the viaduct structure itself, would it not, if the same traffic went over it?
A. Yes sir.
Q. It would be a more dangerous crossing than it is now if the same traffic went over it?
A. I do not see why it should be any more dangerous.
Q. The fact that it would be narrow and the vehicles would have to take turns to get across and the structure would tend to
112 obstruct the view of the cars, would make some difference, would it not?
A. I think the greatest obstruction to view would be the buildings themselves, not the viaduct.
Q. The viaduct tends to obstruct the view and distract the attention of people in passing vehicles, might it not?
A. Oh, it might in some way.
Q. Do you know whether or not in the past few years there has been a change in the surface of Dodge Street, or when Dodge street was brought to its present grade?
A. The original grade was established in 1888, March 6th, and the grade was changed March 18th, 1890, from the east line of 40th street to the Belt Railway.
Q. How about west of there?
A. There has been no change so far as the grade is concerned from March 1888.
Q. Well, didn't the street cars of the system that was constructed there originally run on the surface of the street before the street was worked to grade?
A. I am unable to answer that question.
Q. Do the 1908 specifications, general specifications, have creosoted wood block pavement?
A. I do not know (Witness looks at specifications) Well, it does, Mr. Brogan, in a way.

Q. What paragraph is it?

A. Under "General description," paragraph one. It relates to two forms of floor construction, one of reinforced concrete, and another of "accepted form of paving carried by a wooden floor system, which is to be creosoted unless otherwise specified."

Q. Is that the only reference to creosoted pavements in the specifications?

A. Yes sir.

Q. You would not consider that full specifications for creosoted wood block pavement, would you Mr. Craig?

A. No sir.

Q. In the subsequent specifications adopted this present year there were some full specifications for creosoted wood block pavement, was there not?

A. Yes sir.

Q. And when you say in your affidavit that Mr. Smith is mistaken when he says that the specifications shown him did not contain full specifications for creosoted wood block pavement, you had in mind the specifications which were then under preparation for adoption in 1910, did you not—your affidavit was based on that?

A. It was.

Redirect examination.

By Mr. DUNN:

Q. Mr. Craig, what other street—or rather what is the first street north of Dodge that is open which crosses 45th and 46th,
113 or the line of the Belt Railway from east of the railway company's line to the west limits of the city?

A. I believe that the first street is Cass street, I am not sure of that.

Q. Is Cass street open across the tracks?

A. Yes sir.

Q. Cass street is how far north of Dodge?

A. Four blocks.

Q. And what is the first street south of Dodge which crosses the tracks of the Missouri Pacific?

A. Farnam.

Q. And that is two blocks south of Dodge Street?

[Q.] Yes sir.

Q. The railroad line of the Missouri Pacific crosses all of the streets leading out of Omaha between somewhere south of Leavenworth and north of Hamilton, does it not?

A. Yes, that is streets leading in a westerly direction.

Q. Yes, I mean westerly to the city limits?

A. Yes sir.

Q. Now, speaking of the specifications; you say it was your judgment and understanding and it would be the policy that you would pursue in the construction of this viaduct, to expect the Railroad Company to prepare detail plans and specifications and submit them to you for your approval and then send them to the City Council for their approval, that is correct, is is?

A. Yes sir.

Q. Now, is it not also true, Mr. Craig, that the 1908 specifications, and the plans which have been already prepared the outlines of the plans would be sufficient to enable you to determine whether any detail plans and specifications that might be prepared by the Railroad Company for the construction of the viaduct, did in fact comply with those general plans and specifications?

A. Yes sir.

Q. In other words, you could superintend and require the construction of the viaduct according to the general plans and specifications upon detail plans prepared by the Railroad Company, without again having the detail plans approved by the Mayor and Council?

Mr. BROGAN: That is objected to as leading and asking the witness to make an argument for the defense.

Mr. DUNN: Question withdrawn.

Q. What I want to get at, Mr. Craig, is you do not need the approval or authority of the City Council so far as you are concerned to enable you to say that the viaduct when constructed is constructed according to the present general plans and specifications?

A. No sir.

114 Q. It would be a matter then of precaution and safety to again submit the detail plans to the Mayor and Council?

A. Yes sir.

Recross-examination.

By Mr. BROGAN:

Q. Didn't you say to me in answer to my question, Mr. Craig, that before commencing construction of the viaduct under detail plans and specifications, it would be necessary that they be submitted to you for approval and then submitted to the City Council for approval?

A. Yes sir.

Q. Yes, and you still say that?

A. Yes, but I was asked the question whether we could build the viaduct or not.

Q. Yes, it is possible to build a viaduct that would not be a radical departure from the outlines of the one shown in these plans without further submitting the details to the Council?

A. It is possible to build the structure, yes.

Q. But that was not what was contemplated here, is it?

A. No.

Q. It was contemplated that the detail plans would be prepared and approved by the City Engineer and City Council before the work would be authorized to be begun?

A. Yes sir.

Witness excused.

E. E. LARKINS, a witness on the part of respondents, having been called, sworn and examined heretofore, is at this time recalled for further examination on behalf of respondents, as follows:

By Mr. DUNN:

Q. Now, Mr. Larkins, can you state—that is, have you examined all three sets of specifications, and can you state now wherein the specifications approved in 1910 differ from the specifications approved in 1908?

Mr. BROGAN: That is objected to as not the best evidence, and for the reason that the specifications speak for themselves, but I have no objection to this witness pointing out, for the convenience of court and counsel, the points where these differences exist, with the understanding, that the documents themselves are controlling.

A. I checked up the differences between those three copies, the office copy and those two approved copies. Do you want me
115 to go into the details of all the comparisons that I made, or how do you want that?

Q. Can you state it briefly or shortly as you have it there?

A. There is a difference between the office copy and the copy approved in 1910, differing from the specifications of 1908 with reference to Paragraph One and Paragraph Eleven. Paragraph 17 is eliminated from the office copy and the copy approved July, 1910. Under the subject of the floor system that whole subject has been revised and the office copy and the copy approved July 1910 coincide and are different from the copy of 1908 approved. Then under the paragraph of loadings there is a change made in the approved copy of 1908 which now stands in the office copy and in the copy approved July 1910 alike, and these are the only changes.

Witness Excused.

At this time by agreement, the further taking of testimony in this case was postponed until September 16th, 1910.

September 16, 1910, parties met pursuant to postponement.

Present: Mr. F. A. Brogan appearing for Complainant; Mr. I. J. Dunn appearing for respondents.

The following proceedings were had:

The following stipulation was made and entered into:

Stipulation.

1st. That the Omaha Belt Railway Company acquired a right of way across what is now Dodge Street between 45th and 46th streets, the point now in controversy, in the year 1885, and constructed the present railroad track over and along said right of way in the year 1886, and the complainant herein by proper deeds of conveyance

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has since acquired all the rights of the Omaha Belt Railway Company in the said railroad and right of way.

2nd. The owners of the real estate on both sides of said railroad at that point dedicated and placed on file a plat of Briggs Place Apr. 4, 1887, thereby dedicating Dodge Street to public use as a highway.

3rd. That when the said Omaha Belt Railway Company acquired its right of way and constructed its track, and when Dodge street was dedicated as a highway by the owners of the adjoining land, the territory in question was not in the city limits of the City of Omaha, and was not within the limits of any municipal corporation;
116 and that by Ordinance No. 1310 of the City of Omaha, which was approved and took effect April 9, 1887, the city limits of the City of Omaha were extended westward so as to include the territory adjacent to Dodge Street and 45th and 46th streets.

Complainant's Exhibit No. 11 being a blue print of a sketch prepared by the witness C. E. Smith, showing the outlines of a proposed viaduct, one figure representing a proposed viaduct whose east end begins west of the Saddle Creek Sewer at its present grade with a grade of 7.4 per cent on the east slope of the viaduct, and the lower figure showing the outline of a proposed viaduct with a grade of 6.5 per cent on the east slope, and providing for raising the grade of Dodge Street at its intersection with the Saddle Creek right of way 3 feet, is offered in evidence by complainant and received without objection.

The same is hereto attached.

It is agreed that no action of the City Council was taken approving the plans for the Dodge Street viaduct, except by the ordinance and resolutions set forth in the pleadings or offered in evidence herein, and that no other plan was approved, except Exhibit No. 1.

(Here follow diagrams marked page 117, Complainants' Exhibit No. 1, and page 119, Complainants' Exhibit No. 2.)

120 COMPLAINAT'S EXHIBIT No. 3. (C. W. P.)

General Specifications for Steel Highway Bridges and Viaducts, City of Omaha.

(Sd.) ANDREW ROSEWATER,
City Engineer.

June 9th, 1908.

General Description.

Material.

1. All structures to be wholly of rolled steel, either soft or medium, except the floors which may be either (*a*) an accepted form of paving resting on a concrete base which is carried by buckle plates; (*b*) an accepted form of paving carrierd by reinforced concrete floor system; (*c*) an accepted form of paving carried by a wooden floor system which is to be creosoted unless otherwise specified; (*d*) plank flooring carried by a wooden floor system which is to be creosoted unless otherwise specified.

Cast iron or cast steel will be permitted only in machinery of moveable bridges and in special cases for shoes and bearings.

Type of Bridge.

2. The following type of bridges are recommended:
Spans up to 25 feet—Rolled beams.
Spans 25 to 40 feet—Rolled beams or plate girders.
Spans 40 to 80 feet—Riveted plate or lattice girders.
Spans 80 to 120 feet—Lattice girders.
Spans over 120 feet—Lattice girders or pin connected trusses.

Clearance.

3. Minimum clearance over railroad tracks to be 24 feet unless otherwise specified or allowed by the railroad company.

Minimum clearance over streets to be 15 feet.

Minimum longitudinal clearance from track centers to be 8 feet unless otherwise specified or allowed by the railroad company.

For bridges carrying street cars the clear width from the centers of track shall not be less than 6½ feet at height exceeding 1 foot 6 inches, above the top of rails where the tracks are straight.

In determining the clearance on curves the extreme length of street car shall be taken as 45 feet, the width 8 feet, and
121 the distance between centers of trucks as 20 feet, unless otherwise specified.

Head-room.

4. For all through bridges there shall be a clear head-room of not less than 15 feet above the floor for a width of at least 6 feet over car track.

Width.

5. Width of bridge to be as conditions demand. The width between centers of trusses shall be in no case *be* less than 1/20 of the span between centers of end pins or shoes.

Grade.

6. Maximum grade to be 6 per cent unless otherwise specified.

Foot-walks.

7. Where foot-walks are required they will generally be placed outside of the trusses and girders and supported by a cantilever connection.

Hand-Railing.

8. A strong and suitable hand railing will be placed at each side of the bridge and be rigidly attached to the superstructure.

Truss Bridges.

Length of Span.

9. In calculating strains the length of span shall be understood to be distance between centers of end pins for trusses, and "c" to "c" of trusses for cross floor beams.

Form of Trusses.

10. Form of bridge truss to be left to the discretion of the designing engineer unless determined by local conditions.

Floor Beams.

11. All floor beams in through bridges shall be riveted to the posts above or below the pins.

Stringers.

12. The floor stringers to be symetrically placed under rails of present and future maximum number of street railway tracks and if possible one stringer to be placed under each rail of the above condition of tracks; steel stringers shall preferably be riveted to the web of the floor beams.

122 Lateral Bracing.

13. All lateral sway and postal bracing must be made of shapes capable of resisting compression as well as tension and must have riveted connections.

All bridges must have lateral struts at the ends except where end floor beams act as such.

Girders — Bridges.

Length of Span.

14. In calculating strains the length of span shall be understood to be the distance between centers of bearings and "*c*" to "*c*" of girders for floor beams.

Form of Girders.

15. Form of girders to be left to the discretion of the designing engineer unless determined by local conditions.

Spacing of Girders.

16. Girders to be spaced generally from 6 feet to 8 feet on centers.

Floor Beams.

17. All floor beams to be securely fastened to girders.

Lateral Bracing.

18. All lateral bracing must be made of shapes capable of resisting compression and tension and must have riveted connections.

Bents and Towers.

Bents.

19. Bents shall as a general rule be composed of two or more supporting columns, depending on width of bridge, thoroughly connected and with struts between the feet of the columns. The foot of the column must be secured to an anchorage capable of resisting double the specified wind forces.

Each tower shall have sufficient base longitudinally to be stable when standing alone without other support than its anchorage.

Tower spans for high trestles shall not be less than 30 feet.

Floor System.

Art. 1-(*a*). Buckle Plates.

21. Buckle plates will not be less than 5/16 inch thick and will crown 2-inches at the centers. Plates of this thickness and
123 crown may be used to widths of 4-feet under the roadway and 5-feet under the sidewalks.

Concrete.

22. The concrete over buckle plates shall be at least 3-inches thick on the roadway and 2-inches thick on the side-walks, over the highest point to be covered, not counting rivet or bolt heads.

Concrete to be composed of 1 part Portland Cement; 3 parts sand, and 6 parts stone.

Concrete to be water proof- if specified.

Art. 1-(*b*).

23. Concrete to be composed of 1 part Portland Cement, 2 parts sand and 4 parts stone.

Concrete to be water proofed if specified.

Reinforcement.

24. Reinforcement to be Corrugated Bars, squares recommended. Small bars and a close spacing to be used in preference to large bars and a wide spacing. Temperature to be allowed for at the rate of 0.4 square inches of reinforcement per square foot of cross section of concrete which is equivalent to a range of temperature of 150 degrees.

Art. 1-(*c*). Joists.

25. Wooden joists shall not be less than 3 inches thick, shall be spaced not more than 2½ feet between centers and shall be lapped over the seat angles or floor beams to exact level. In the latter case they shall lap by each other over the full width of the floor beam, and shall be separated ½ inch for free circulation of air.

Roadway Planks.

26. For single thickness the roadway planks shall not be less than 3 inches thick, nor less than 1/12 of the distance between stringers and shall be laid transversely with ¼ inch openings.

Art. 1 (*d*). Joists.

27. Wooden joists shall not be less than 3 inches thick, shall be spaced not more than 2½ feet between centers, and shall be lapped over the seat angles or floor beams to exact level. In the latter case they shall lap by each other over the full width of the floor beams, and shall be separated ½ inch for free circulation of air.

124 Roadway Planks.

28. For single thickness the roadway plnak shall not be less than 3 inches thick, not less than 1/12 of the distance between stringers, and shall be laid transversely with ¼ inch opening.

Additional Roadway Planks.

29. When an additional wearing surface is specified for the roadway it shall be 1½ inches thick, and the lower planks of a minimum thickness of 2½ inches, shall be laid diagonally and with ½ inch openings.

Foot-walk Planks.

30. The foot walk planks shall not be less than 2 inches thick nor more than 6 inches wide, spaced with ½ inch openings.

Plank Laid.

31. All planks shall be laid with the heart side down, shall have full and even bearing on and be firmly attached to the stringers.

Curbs and Guards.

32. Bridges with buckle plate and reinforced concrete floors will have a suitable masonry or metal curb on each side of the roadway to hold paving and act as a wheel guard. The wheel guard must be so arranged that it can be removed and replaced when worn or injured. There will also be a metal edging strip on each side of the foot walks to hold the paving in place.

Bridges with wooden floors to be provided with wheel guards of a cross section not less than 6 inches by 4 inches on each side of the roadway. They shall be blocked up from the floor plank with blocks 2 inches by 6 inches by 12 inches long, not over 5 feet apart center to center, held in place by one ¾ inch bolt passing through the center of each blocking piece and securely fastened to the stringers below. The wheel guards shall be spliced with half and half joints with 6 inches lap over a blocking piece.

Slope of Sidewalks.

33. The sidewalks shall slope 1 inch in 5 feet preferably towards the roadway.

Crown of Roadway.

The roadway shall crown from curb to center 1 inch for each ten feet of the roadway width.

125 Depth of Curb.

The depth of curb will generally be 6 inches.

Elevation Top of Concrete.

34. The sub-grade, top of concrete, for the sidewalks will be — inches below final grade and slope.

The concrete over roadway will be laid to the correct crowning and elevation to allow — inches for the selected paving.

Drainage.

35. Proper provision shall be made for drainage.

Loads.

Dead Load.

36. All the structures shall be proportioned to carry the following loads:

1st. The weight of the metal in the structure and floor.

2nd. The weight of the paving, and concrete or wooden floor.

These two items taken together shall constitute "the dead load."

In determining the weight of the structure for the purpose of calculating strains, the following weights shall be assumed in determining the weight of the floor system.

Hard woods—4½ pounds per foot B. M.

Spruce and white pine—3½ pounds per foot B. M.

Concrete—150 pounds per cubic foot.

Paving Brick—150 pounds per cubic foot.

Asphaltum—130 pounds per cubic foot.

Sand—110 pounds per cubic foot.

Granite Stone—160 pounds per cubic foot.

Street Railway Track—100 pounds per lineal foot of track.

Live Load.

37. A live load of 150 pounds per square foot for the roadway, and 100 pounds per square foot for the sidewalks, for all types of bridges and floors unless otherwise specified.

Impact.

38. To compensate for the effect of impact and vibration, 50 per cent of the maximum strains resulting from the above mentioned live load shall be added thereto.

126

Wind.

39. The wind pressure shall be assumed acting in either direction horizontally.

1st. At 30 pounds per square foot on the exposed surface of all trusses and the floor as seen in elevation, in addition to a horizontal live load of 150 pounds per lineal foot of the span moving across the bridge.

2nd. At 50 pounds per square foot on the exposed surface of all trusses and the floor system.

The greatest result shall be assumed in proportioning the parts.

Longitudinal Forces Due to Momentum of Street Cars.

40. The strains produced in the bracing of the trestle towers, in any members, of the trusses, or in the attachment of the girders

or trusses to their bearings, by suddenly stopping the maximum electric car trains or any part of the work must be provided for; the coefficient of friction of wheels sliding upon the rails being assumed as .02.

Centrifugal Force.

41. When the structure carrying a street railway is on a curve, the additional effects due to the centrifugal force shall be considered.

Stresses in Trestle.

42. In trestle towers the bracing and columns shall be proportioned to resist the following lateral forces, in addition to the strains from dead and live loads.

The trusses loaded or unloaded, the lateral pressures specified above; and a lateral pressure of 100 pounds for each vertical lineal foot of the trestle bents.

Temperature.

43. Variation in temperature to an extent of 150 degrees shall be provided for.

Proportion of parts.

Least Thickness of Materials.

4. No material shall be used less than 3/8 of an inch in thickness except for lining or fil-ing vacant places.

127 Permissible Tensile Strains.

45. All parts of the structure shall be so proportioned that the sum of the maximum loads, together with the impact, shall not [*course*] the tensile strain to exceed:

On soft steel, 15,000 pounds per square inch.

On medium steel, 17,000 pounds per square inch.

The same limiting unit strains shall also be used for members strained by wind pressure, centrifugal force, or momentum of train, if any.

Net Sections.

46. Net sections must be used in all cases in calculating tension members, and in deducting rivet holes, they must be taken 1/8 of an inch larger than the size of the rivets.

Pin connected riveted tension members shall have a net section through the pin hole 25 per cent in excess of the net section of the body of the member. The net section back of the pin hole shall be at least 0.75 of the net section through the pin hole.

Angles subject to direct tension must be connected by both legs, or the section of one leg only will be considered as effective.

Permissible Compressive Strains.

47. For compression members these permissible strains of 15,000 and 17,000 pounds per square inch shall be reduced in proportion

to the [ration] of the length to the least radius of gyration of the section by the following formula:

For soft steel,

For medium steel,

Where

p—permission workings strains per square inch in compression.

l—length of pieces in inches, center to center connections.

r—least radius of gyration of the section in inches.

Maximum Length of Compression Members.

48. No compression members however shall have a length exceeding 120 times its least radius of gyration, excepting those for wind bracing, which may have a length not exceeding 140 times the least radius of gyration.

128 Reversal of Strains.

49. The reversal of strain in members of bridges need not be considered, but the members shall be proportioned for the strain giving the larger section.

Combined Strains.

50. In case the maximum strains due to wind, and centrifugal force added to the maximum strains due to vertical loading (including impact) shall exceed the following limits:

On soft steel, 19,000 pounds per square inch.

On medium steel, 21,000 pounds per square inch, properly reduced for compression, addition must be made to such sections until these limits are not exceeded.

The permissible strains for the connections shall be increased proportionately.

Should the strains be reversed in any possible case proper provision must be made for such strains in the opposite direction.

Transverse Loading of Tension or Compression Members.

51. When the floor system rests directly on the top or bottom chord, the latter must be so proportioned that the algebraic sum of the strains per square inch on the outer fibre, resulting from the direct compression or tension and ¾ of the maximum bending moment (the chord being considered as a beam of one panel length, supported at the ends), shall not exceed the before mentioned limiting strains in tension or compression, the proper amount of impact being added to each kind of loading.

The bending moment at panel points shall be assumed equal to that at the center, but in opposite direction.

All other members which are subject to direct strain in addition to bending moment are to be similarly calculated.

Shearing and Bearing Strains.

52. The shearing strain on rivets, bolts or pins, per square inch of section, shall not exceed 11,000 pounds for soft steel, and 12,000 pounds for medium steel; and the pressure upon the bearing surface of the projected semi-intrados (diameter x thickness) of the rivet, bolt or pin hole, shall not exceed 22,000 pounds per square inch for soft steel, and 24,000 pounds for medium steel.

129 Field Connections.

53. In field connections the number of rivets or bolts thus found shall be increased 25 per cent, if driven by hand, but 10 per cent for rivets driven by power.

Bending Strains on Pins.

54. The bending strain on the extreme fibre of pins shall not exceed 22,000 pounds per square inch for soft steel, and 25,000 [—] per square inch for medium steel, when centers of bearings of the strained members are taken as the points of application of the strains.

Plate Girders.

55. Plate girders shall be proportioned on the assumption that ⅛ of the gross area of the web is available as flange area. The compressed flange shall have the same sectional area as the tension flange; but the unsupported length of flange shall not exceed 20 times its width.

In calculating shearing strains and bearing strains on web rivets of plate girders, the whole of the shear acting on the side next the [abutment] is to be considered as being transferred into the flange angles in a distance equal to the depth of the girder.

56. The shearing strain in web plates shall not exceed 9,000 pounds per square inch for soft steel, and 10,000 pounds per square inch for medium steel; but no web plate shall be less than ⅜ of an inch in thickness.

57. The web shall have [stiffereners] riveted on both sides, with a close bearing against upper and lower flange angles at the ends and inner edges of bearing plates, and at all points of local and concentrated loads, and also, when the thickness of the web is less than 1-60 of the unsupported distance between flange angles, at points throughout the length of the girder, generally not farther apart than the depth of the full web plate, with a maximum limit of 5 feet.

Rolled Beams.

58. The depth of rolled beams shall in no case be less than 1-30 of the span.

Floor Timber.

59. The fibre strain on floor timber from dead and live load without impact shall not exceed 1,200 pounds per square inch on yellow pine and white oak, and 1,000 pounds per square inch on white pine and spruce.

130 *Details of Construction.*

Camber.

60. All truss bridges shall be given a proper camber.

Symmetrical Sections.

61. All sections shall preferably be made symmetrical, and the pins placed in the line of the neutral axis.

Adjustable Members.

62. Adjustable members in any parts of structures shall preferably be avoided.

Truss Bridges.

63. All through spans shall have stiff end vertical suspenders.

Eye-bar Heads.

64. The heads of eye-bars shall not be less in strength than the body of the bar.

Nuts.

65. All nuts must be of hexagonal shape.

Portals.

66. All through spans with top lateral bracing shall have portals at each end of span, connected rigidly to end posts. They shall be as deep as the specified head room will allow, and provision shall be made in the end posts for the bending strain produced by the wind pressure.

Diagonal.

67. Deck bridges shall have diagonal braces at each panel, of sufficient strength to carry half the maximum strain increment due to wind and centrifugal force, if any.

Gusset Plates.

68. Pony trusses and through plate girders shall be stayed by knee braces or gusset plates at the ends, and at each floor beam or transverse strut.

Bolsters and Expansion Rollers.

69. All bridges exceeding 100 feet in length shall have hinge bolsters on both ends and one end nests of turned friction rollers, running between planed surfaces. Rollers will not be less than 3 inches in diameter; and the pressure per lineal inch of rollers, including impact shall not exceed $1200d$ for steel rollers between steel surfaces (d equals diameter of roller in inches).

131 Friction Plates.

70. For bridges less than 100 feet in length one end shall be free to move upon smooth surfaces.

Bed Plates.

71. Bed plates shall be so proportioned that the pressure upon masonry (including impact) will not exceed 400 pounds per square inch.

Spacing of Rivets.

72. The pitch of rivets, in the direction of the strain shall never exceed 6 inches, nor 16 times the thickness of the thinnest outside plate connected, and not more than 50 times that thickness at right angles to the strain.

At the ends of compression members the pitch shall not exceed four diameters of the rivets, for a length equal to twice the width of the member.

The distance from the edge of any piece to the center of a rivet-hole must not be less than 1½ times the diameter of the rivet, nor exceed 8 times the thickness of the plate; and the distance between centers of rivet-holes shall not be less than 3 diameters of the rivets.

Splices.

73. The butt joints of compression members shall be connected by splices to hold them truly in position; all other joints in riveted work, whether in tension or compression, must be fully spliced.

Tie Plates.

74. All segments of compression members connected by latticing only, shall have tie plates placed as near the ends as practicable. They shall have a length of not less than the greatest depth or width of the member, and a thickness not less than 1-50 of the distance between the rivets connecting them to the compressed members.

Lacing.

75. Single lattice bars shall have a thickness of not less than 1-40, and double bars connected by a rivet at the intersection of not less than 1-60 of the distance between the rivets connecting them to the member; and their width shall be in accordance with American Bridge Company's standards, generally:

132 For 15 inch channels, or built sections with 3½ and 4 inch angles: 2½ inches (⅞ inch rivets).

For 12, 10 and 9-inch channels, or built sections with 3-inch angles: 2¼ inches (¾ inch rivets).

For 8 and 7-inch channels, or built sections with 2½ inch angles: 2 inches (⅝ inch rivets).

For 6 and 5-inch channels, or built sections with 2-inch angles: 1¾ inches (1½ inch rivets).

Pin Plates.

76. All pin-holes shall be reinforced by additional material when necessary, so as not to exceed the allowed pressure on the pins. These reinforcing plates must contain enough rivets to transfer the proportion of pressure which comes upon them, and at least one plate on each side shall extend not less than 6 inches beyond the edge of the tie plate.

Web Splices.

77. Web plates of girders must be spliced at all joints by a plate on each side of the web, capable of transmitting the full strain through splice rivets.

Flange Plates.

78. The flange plates of all girders must be limited in width so as not to extend beyond the outer lines of rivets connecting them with the angles, more than five inches or more than eight times the thickness of the first plate. Where two or more plates are used in the flanges, they shall either be of equal thickness or shall decrease in thickness outward from the angles.

Workmanship.

Riveted Work Punching.

79. All riveted work shall be punched accurately with holes 1-16 of an inch larger than the size of the rivet, and when the pieces forming one built member are put together the holes must be truly opposite; no [*drifint*] to distort the metal will be allowed; if the hole must be enlarged to admit the rivet, it must be reamed.

Holes for Field Rivets.

80. All holes for field rivets in floor beam and stringer connections and splices in tension members shall be accurately
133 drilled to an iron templet or reamed while the connecting parts are temporarily put together.

Planing and Reaming.

81. In medium steel over ¾ of an inch thick, all sheared edges shall be planed, and all holes shall be drilled or reamed to a diameter of ⅛ of an inch larger than the punched holes, so as to remove all the sheared surface of the metal.

Rivets.

82. The rivet heads must be approved hemispherical shape, and of a uniform size for the same size rivets throughout the work. They must be full and neatly finished throughout the work and concentric with the rivet hole.

All rivets when driven must completely fill the holes, the heads be in full contact with the surface, or counter sunk when so required.

Riveters.

83. Wherever possible, all rivets shall be machine driven. Power riveters shall be direct-acting machines, worked by steam, hydraulic pressure, or compressed air.

Bolts.

84. When members are connected by bolts which transmit shearing strains, such bolts must have a driving fit.

Neat Finish.

85. The several pieces forming one built member must fit closely together, and when riveted shall be free from twist, bends, or open joints.

All portions of the work exposed to view shall be neatly finished.

Contact Surfaces.

86. All surfaces in contact shall be painted before they are put together.

Forged Work Eye-bars.

87. The heads of eye bars shall be made by upsetting, rolling or forging into shape. Welds in the body of the bar will not be allowed.

The bars must be perfectly straight before boring.

The holes shall be in the center of the head and on the center line of the bar.

All eye-bars shall be annealed.

134 Machine Work Facing.

88. All abutting surfaces in compression members shall be truly faced to even bearings, so that they shall be in such contact throughout as may be obtained by such means.

The ends of riveted floor girders shall be faced true and square.

Pin Holes.

89. Pin holes shall be bored truly parallel with one another and at right angles to the axis of the member unless otherwise shown in drawings; and in pieces not adjustable for length, no variation of more than 1-64 of an inch for every 20 feet will be allowed in the length between centers of pin holes.

Bars which are to be placed side by side in the structure shall be bored at the same temperature, and shall be of such equal length that upon being piled on each other, the pin shall pass through the holes at both ends at the same time without driving.

Pins.

All pins shall be accurately turned to a gauge, and shall be straight and smooth.

Play in Pin Holes.

90. The clearance between pin and pin hole shall be 1-50 of an inch for pins up to 3½ inches in diameter, which amount shall be gradually increased to 1-32 of an inch for pins 6 inches in diameter and over.

Pilot Nuts.

91. All pins shall be supplied with steel pilot nuts, for use during erection.

Workmanship.

92. All workmanship shall be first class in every particular.

Steel.

Process of Manufacture.

93. All steel must be made by the Open Hearth process, and if by acid process, shall contain not more than .08 per cent of phosphorus, and if by basic process, not more than .05 per cent of phosphorus, and must be uniform in character for each specified kind.

Finish.

94. The finished bars, plates and shapes, must be free from injurious seams, flaws, or cracks, and have a clean, smooth finish.

135

Test Pieces.

95. The tensile strength, limit of elasticity and ductility, shall be determined from a standard test piece, cut from the finished material, of at least ½ square inch section. All broken samples must show a silky fracture of uniform color.

Annealed Test Pieces.

96. Material which is to be used without annealing or further treatment is to be tested in the condition in which it comes from the rolls. When material is to be annealed or otherwise treated before use, the specimen representing such material is to be similarly treated before testing.

Marking.

97. Every finished piece of steel shall be stamped with the blow number identifying the melt.

Physical Properties.

98. Steel shall be of three grades: Rivet, Soft and Medium.

Rivet Steel.

99. Rivet steel shall have: Ultimate strength, 48,000 to 58,000 pounds per square inch. Elastic Limit, not less than one-half the

ultimate strength. Elongation, 26 per cent. Bending test, 180 degrees flat on itself, without fracture on outside of bent portion.

Soft Steel.

100. Soft steel shall have: Ultimate strength, 52,000 to 62,000 pounds per square inch. Elastic limit, not less than one-half the ultimate strength. Elongation, 25 per cent. Bending test, 180 degrees flat on itself, without fracture on outside of bent portion.

Medium Steel.

101. Medium steel shall have: Ultimate strength, 60,000 to 70,000 pounds per square inch. Elastic limit, not less than one-helf the ultimate strength. Elongation, 22 per cent. Bending test, 180 degrees, to a diameter equal to thickness of piece tested, without fracture on outside of bent portion.

Full Size Test of Steel Bars.

102. Full size test of steel eye-bars shall be required to show not less than 10 per cent elongation in the body of the bar, and tensile strength not more than 5,000 pounds below the minimum tensile strength required in specimen test of the grade of steel from which they are rolled. The bars will be required to break in the
136 body, but should a bar break in the head, but develop 10 per cent, elongation and the ultimate strength specified, it shall not be cause for rejection, provided not more than one-third of the total number of bars tested break in the head; otherwise the entire lot will be rejected.

Pin Steel.

103. Pins made of either of the above mentioned grades of steel shall on specimen test pieces cut from finished material fill the requirements of the grade of steel from which they are rolled, excepting the elongation, which shall be decreased 5 per cent, from that specified.

Drifting.

104. Punched rivet holes, pitched two diameters from a sheared edge, must stand drifting until the diameter is one-third large- than the original hole, without cracking the metal.

Slabs for Plates.

105. The slabs for rolling plates shall be rolled from ingots of at least twice their cross-section.

Pins.

106. Pins up to 7 inches diameter shall be rolled.

Pins exceeding 7 inches diameter shall be forged under a steel hammer striking a blow of at least 5 tons. The blooms to be used for this purpose shall have three times the sectional area of the finished pins.

Variation in Weights.

107. A variation in cross-section or weight of rolled material of more than 2½ per cent from that specified, may be cause for rejection.

Steel Casting.

108. Steel casting shall be made of Open Hearth Steel containing from .25 to .40 per cent carbon and not over .08 per cent of phosphorus, and shall be practically free from blow holes.

Cast Iron.

109. Except where chilled iron is specified, all castings shall be of tough gray iron, free from injurious cold shuts or blow holes, true to pattern, and of workmanlike finish. Test bars one inch square, loaded in middle between supports 12 inches apart, shall bear 2,500 pounds or over, and deflect 0.15 of an inch before rupture.

137 *Timber.*

Timber.

110. The timber shall be strictly first-class spruce, white pine, Douglas fir, Southern Yellow pine, or white oak bridge timber; sawed true and out of wind, full size, free from wind shakes, large or loose knots, decayed or sapwood, worm-holes or other defects impairing its strength or durability.

Painting.

Painting.

111. All iron work before leaving the shop shall be thoroughly cleaned from all loose scale and rust, and be given one good coating of pure boiled linseed oil, well worked into all joints and open spaces.

In riveted work, the surfaces coming in contact shall be painted before being riveted together.

Pieces which are not accessible for painting after erection shall have two coats of paint.

The paint shall be of good quality of oxide of iron paint, mixed with pure linseed oil, or such as may be specified in contract.

After the structure is erected, the iron work shall be thoroughly and evenly painted with two additional coats of paint, mixed with pure linseed oil, of such quality and color as may be selected.

Pins, pin holes, screw threads and other finished surfaces shall be coated with white lead and tallow before being shipped from the shop.

Inspection.

Inspection.

112. All facilities for inspection of material and workmanship shall be furnished by the contractor to competent inspectors, and the engineer, and his inspectors shall be allowed free access to any part of the works in which any portion of the material is made.

The contractor shall furnish, without charge, such specimens (prepared) of the several kinds of material to be used as may be required to determine their character.

138 *Testing.*

Testing.

113. Full sized parts of the structure may be tested at the option of the purchaser: but, if tested to destruction, such material shall be paid for at cost, less its scrap value, if it proves satisfactory.

If it does not stand the specified tests, it will be considered rejected material, and be solely at the cost of the contractor, unless he is not responsible for the design of the work.

General Data.

For the { Construction / Reconstruction / Repair } of bridge over.....
..... at .....City of Omaha
Ordinance No.....declaring necessity.
Date of plans and specifications by City Engineer.....
Date of approval by city council.....
Ordinance No..... providing for appraisement of damages.
Ordinance No..... fixing the proportion to be constructed and amounts to be paid by companies.
Width of roadway.....
Paving of roadway.....
Number of sidewalks.....
Paving on sidewalks.....
Floor system .....
Live Load ..... on roadways; ..... on sidewalk:
Number of street car tracks.....
Spacing of street car tracks.....
Clearance above railroad tracks.....
Clearance above street.....
Longitudinal clearance from face of abutments, piers, etc., to center line of railroad tracks.....
Maximum grade .....
Remarks .....
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City Engineer.

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Maximum grade .....
Remarks .....
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(S'd) ANDREW ROSEWATER,
City Engineer.

Approved June 9, 1908.
DAN B. BUTLER,
City Clerk.
L. B. JOHNSON,
Pres. City Council.

Approved June 12, 1908.
JAMES C. DAHLMAN,
Mayor.

140 COMPLAINANT'S EXHIBIT No. 4. (C. W. P.)

General Specifications for Steel Highway Bridges and Viaducts, City of Omaha, 1908.

Revised 1909.

General Description.

Material.

1. All structures to be wholly of rolled steel, either soft or medium except the floors which may be either (*a*) an accepted form of paving resting on a concrete base which is carried by buckle plates; (*b*) an accepted form of paving carried by a reinforced concrete floor system; (*c*) creosoted block paving carried on creosoted planking; (*d*) plank flooring carried by steel stringers of joints.

Cast iron or cast steel will be permitted only in machinery of moveable bridges and in special cases for shoes and bearings.

Type of Bridge.

2. The following type of bridges are recommended:
Spans up to 25 feet, Rolled beams.
Spans 25 to 40 feet, Rolled beams or plate girders.
Spans 40 to 80 feet, Riveted plate or lattice girders.
Spans 80 to 120 feet, Lattice girders.
Spans over 120 feet, Lattice girders or pin connected trusses.

Clearance.

3. Minimum clearance over railroad tracks to be 24 feet unless otherwise specified or allowed by the railroad company.

Minimum clearance over streets to be 15 feet.

Minimum longitudinal clearance from track centers to be 8 feet unless otherwise specified or allowed by the railroad company.

For bridges carrying street cars, the clear width from the centers of track shall not be less than 6½ feet at height exceeding one foot six inches, above the top of rails where the tracks are straight.

In determining the clearance on curves, the extreme length of street car shall be taken as 45 feet, the width eight feet, and the distance between centers of trucks as 20 feet, unless otherwise specified.

141 Head Room.

4. For all through bridges, there shall be a clear head-room of not less than 15 feet above the floor for a width of at least six feet over car track.

Width.

5. Width of Bridge to be as conditions demand. The width between centers of trusses shall in no case be less than 1/20 of the span between centers of end pins or shoes.

Grade.

6. Maximum grade to be six per cent unless otherwise specified.

Foot Walks.

7. Where foot-walks are required, they will generally be placed outside of the trusses and girders and supported by centilever connection.

Hand Railing.

8. A strong and suitable hand railing will be placed at each side of the bridge and be rigidly attached to the superstructure.

Truss Bridges.

Length of Span.

9. In calculating strains, the length of span shall be understood to be distance between centers of end pins for trusses, and "*c*" to "*c*" of trusses for cross floor beams.

Form of Trusses.

10. Form of bridge truss to be left to the discretion of the designing engineer unless determined by local conditions.

Floor Beams.

11. All floor beams in through bridges shall be riveted to the posts above the pins.

Stringers.

12. The floor stringers to be symmetrically placed under rails of present and future maximum number of street railway tracks and, if possible, one stringer to be placed under each rail of the above conditions of tracks; steel stringers shall preferably be riveted to the web of the floor beams.

Lateral Bracing.

13. All lateral sway and postal bracing must be made of shapes capable of resisting compression as well as tension and must have riveted connections.

142 All bridges must have lateral struts at the ends except where end floor beams act as such.

Girder Bridges.

Length of Span.

14. In calculating strains, the length of span shall be understood to be the distance between centers of bearings and "*c*" to "*c*" of girders for floor beams.

Form of Girders.

15. Form of girders to be left to the discretion of the designing engineer unless determined by local conditions.

Floor Beams.

16. All floor beams to be securely fastened to girders.

Lateral Bracing.

17. All lateral bracing must be made of shapes capable of resisting compression and tension and must have riveted connections.

Bents and Towers.

Bents.

18. Bents shall, as a general rule, be composed of two or more supporting columns, depending on width of bridge, thoroughly connected and with struts between the feet of the column-. The foot of the columns must be secured to an anchorage capable of resisting double the specified wind forces.

Towers.

19. Each tower shall have sufficient base longitudinally to be stable when standing alone without other support than its anchorage.
Tower spans for high trestles not be less than 30 feet.

Floor System.

Paving.

20. The accepted form of paving to be as per specifications, City of Omaha.

Art. 1-(*a*). Buckle Plates.

21. Buckle plates will not be less than 5/16 inch thick and will crown two inches at the centers. Plates of this thickness and crown may be used to widths of four feet under the roadway and five feet under the sidewalks.

143 Concrete.

22. The concrete over buckle plates shall be at least three inches thick on the roadway and two inches thick on the side walks over the highest point to be covered, not counting rivet or bolt heads.
Concrete to be composed of one part Portland Cement, three parts sand and six parts stone.
Concrete to be water-proof- if specified.

Art. 1 (*b*). Concrete.

23. Concrete to be composed of one part Portland Cement, two parts sand and four parts stone.

Reinforcement.

24. Reinforcement to be a recognized first class make, of Mechanical Bond Bar, squares to be recommended. Small bars and a close spacing to be used in preference to large bars and a wide spacing. Temperature to be allowed for at the rate of 0.4 square inches of reinforcement per square foot of cross section of concrete which is equivalent to a range of temperature of 150 degrees.

Art. 1 (*c*). Floor Planking.

25. Floor planking under paving to be first class Oregon Fir, creosoted. Minimum size of 5″ x 8″ S4S to be used. Flooring to have a driving fit, so that cracks entirely close. To be fastened to stringers by spiking with railroad track spikes underneath the flooring.

Art. 1 (*d*).

26. For single thickness, the roadway planks shall not be less than three inches thick, and shall be laid transversely with ¼ inch opening.

Additional Roadway Planks.

27. When an additional wearing surface is specified for the roadway, it shall be 1½ inches thick, and the lower planks of a minimum thickness of 2½ inches, shall be laid diagonally and with ½ inch openings.

Foot-walk Planks.

28. The foot walk planks shall not be less than three inches thick nor more than six inches wide, spaced with ½ inch openings.

144 Plank Laid.

29. All plank shall be laid with the heart side down, shall have full and even bearing on and be firmly attached to the stringers.

Curbs and Guards.

30. Bridges with buckle plates and reinforced concrete floors will have a suitable masonry or metal curb on each side of the roadway to hold paving and act as a wheel guard. The wheel guard must be so arranged that it can be removed and replaced when worn or injured. There will also be a metal edging strip on each side of the footwalks to hold the paving in place.

Bridges with wooden floors will be provided with wheel guards of a cross section not less than six inches by four inches on each side of the roadway. They shall be blocked up from the floor plank

with blocks two inches by six inches by 12 inches long, nor over five feet apart center to center, held in place by one ¾ inch bolt passing through the center of each blocking piece and securely fastened to the stringers below. The wheel guards shall be spliced with half and half joints with six inches lap over a blocking piece.

Slope of Sidewalks.

31. The sidewalks shall slope one inch in five feet preferably towards the roadway.

Crown of Roadway.

32. The roadway shall crown from curb to center one inch for each ten feet of the roadway width.

Depth of Curb.

33. The depth of curb will generally be six inches.

Elevation Top of Concrete.

34. The sub-grade, top of concrete, for the sidewalks will be — inches below final grade and slope.

The concrete over roadway will be laid to the correct crowning and elevation to allow — inches for the selected paving.

Drainage.

35. Drainage to be provided for by a suitable inlet and down spout running to the ground, the same to be placed each side of roadway, and about 100 feet apart.

145 Loads.

Dead Load.

36. All the structures shall be proportioned to carry the following loads:

1st. The weight of the metal in the structure and floor.

2nd. The weight of the paving and concrete or wooden floor.

These two items taken together shall constitute "the dead load."

In determining the weight of the structure for the purpose of calculating strains, the following weights shall be assumed in determining the weight of the floor system.

Hard woods, 4½ pounds per foot B. M.

Spruce and white pine, 3½ pounds per square foot B. M.

Concrete, 150 pounds per cubic foot.

Paving Brick, 150 pounds per cubic foot.

Asphaltum, 130 pounds per cubic foot.

Sand, 110 pounds per cubic foot.

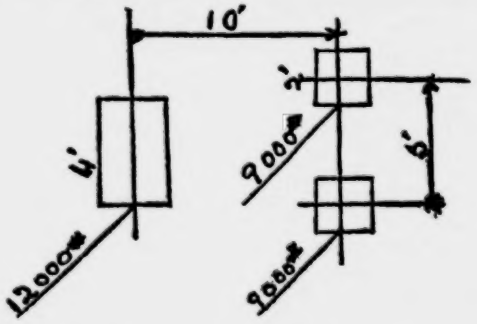
Granite stone, 160 pounds per cubic foot.

Street Railway tracks, 100 pounds per lineal foot of track.

Live Load.

37. "A." A live load of 150 pounds per square foot of roadway and sidewalk.

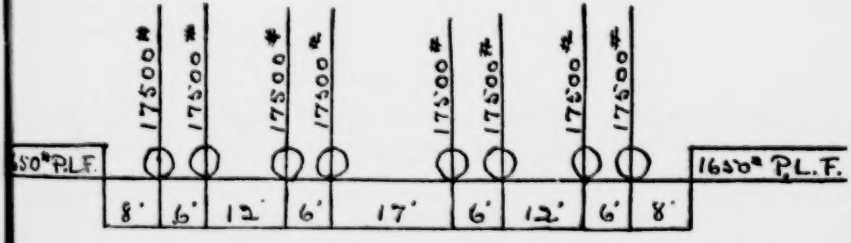
"B." For the floor and its support on any part of the roadway, a 15 ton road roller as per diagram below.



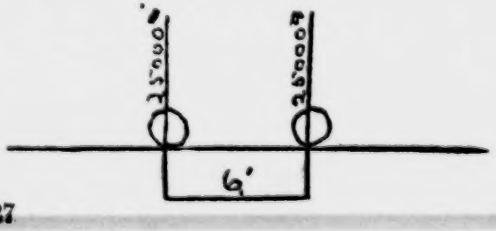
When street car tracks are to be provided for,—

"C." A moving load per track consisting of two trolley cars weighing 35 tons each loaded, coupled together and following as well as preceded by a uniform load of 1650 pounds R. L. F. Trains 146 assumed to occupy a width of 11 feet. Upon the remaining portions of the roadway and sidewalks, a uniform load of 150 pounds per square foot.

Loads of Trolley Cars Distributed as per Diagram.



"D." For floor system, a concentrated load of 25 tons on two axles, 6' center per tracks.



The structure to be proportioned for the above loading which give the maximum stresses.

Impact.

38. To compensate for the effect of impact and vibration, 50 per cent of the maximum strains resulting from the above mentioned live load shall be added thereto.

Wind Pressure.

39. The wind pressure shall be assumed acting in either direction horizontally.

1st. At 30 pounds per square foot on the exposed surface of all trusses and the floor as seen in elevation, in [accition] to a horizontal live load of 150 pounds per lineal foot of the span moving across the bridge.

2nd. At 50 pounds per square foot on the exposed surface of all trusses and the floor system.

The greatest result shall be assumed in proportioning the parts.

147 Longitudinal Forces Due to Momentum of Street Cars.

40. The strains produced in the bracing of the trestle towers, in any members, of the trusses, or in the attachment of the girders or trusses to their bearings by suddenly stopping the maximum electric car trains [*or*] any part of the work must be provided for; the coefficient of friction of wheels sliding upon the rails being assumed as 0.2.

Centrifugal Force.

41. When the structure carrying a street railway is on a curve, the additional effects due to the centrifugal force shall be considered.

Stresses in Trestle.

42. In trestle towers the bracing and columns shall be proportioned to resist the following lateral forces, in addition to the strains from dead and live loads.

The trusses loaded or unloaded, the lateral pressures specified above; and a lateral pressure of 100 pounds for each vertical lineal foot of the trestle bents.

Temperature.

43. Variation in temperature to an extent of 150 degrees shall be provided for.

Proportion of Parts.

Least Thickness of Materials.

44. No material shall be used less than ⅜ of an inch in thickness except for lining or filling vacant places.

Permissible Tensile Strains.

45. All parts of the structure shall be so proportioned that the sum of the maximum loads, together with the impact, shall not [*course*] the tensile strain to exceed:

On soft steel, 15,000 pounds per square inch.

On medium steel, 17,000 pounds per square inch.

The same limiting unit strains shall also be used for members strained by wind pressure, centrifugal force, or momentum of train, if any.

Net Sections.

46. Net sections must be used in all cases in calculating tension members, and in deducting rivet holes, they must be taken ⅛ of an inch larger than the size of the rivets.

148 Pin connected riveted tension members shall have a net section through the pin hole 25 per cent in excess of the net section of the body of the member. The net section back of the pin hole shall be at least 0.75 of the net section through the pin hole.

Angles subject to direct tension must be connected by both legs, or the section of one leg only will be considered as effective.

Permissible Compressive Strains.

47. For compression members these permissible strains of 15,000 and 17,000 pounds per square inch shall be reduced in *proposition* to the [ratio*n*] of the length to the least radius of gyration of the section by the following formula:

For soft steel,

For medium steel,

Where

p—permissible workings strains per square inch in compression.

l—length of pieces in inches, center to center connections.

r—least radius of gyration of the section in inches.

Maximum Length of Compression Members.

48. No compression members however shall have a length exceeding 120 times its least radius of gyration, excepting those for wind bracing, which may have a length not exceeding 140 times the l-ast radius of gyration.

Reversal of Strains.

49. The reversal of strain in members of bridges need not be considered, but the members shall be proportioned for the strain giving the larger section.

Combined Strains.

50. In case the maximum strains due to wind, and centrifugal force added to the maximum strains due to vertical loading (including impact) shall exceed the following limits:

On soft steel, 19,000 pounds per square inch.

On medium steel, 21,000 pounds per square inch, properly reduced for compression, addition must be made to such sections until these limits are not exceeded.

The permissible strains for the connections shall be increased proportionately.

149 Should the strains be reversed in any possible case, proper provision must be made for such strains in the opposite direction.

Transverse Loading of Tension or Compression Members.

51. When the floor system rests directly on the top or bottom chord, the latter must be so proportioned that the algebraic sum of the strains per square inch on the outer fibre, resulting from the direct compression or tension and ¾ of the maximum bending moment (the chord being considered as a beam of one panel length, supported at the ends), shall not exceed the before mentioned limiting strains in tension or compression, the proper amount of impact being added to each kind of loading.

The bending moment at panel points shall be assumed equal to that at the center, but in opposite direction.

All other members which are subject to direct strain in addition to bending moment are to be similarly calculated.

Shearing and Bearing Strains.

52. The shearing strain or rivets, bolts or pins, per square inch of section, shall not exceed 11,000 pounds for soft steel, and 12,000 pounds for medium steel; and the pressure upon the bearing surface of the projected semi-intrados (diameter x thickness) of the rivet, bolt or pin hole, shall not exceed 22,000 pounds per square inch for soft steel, and 24,000 pounds for medium steel.

Field Connections.

53. In field connections the number of rivets or bolts thus found shall be increased 25 per cent, if driven by hand, but 10 per cent for rivets driven by power.

Bending Strains on Pins.

54. The bending strain on the extreme fibre of pins shall not exceed 22,000 pounds per square inch for soft steel, and 25,000 per square inch for medium steel, when centers of bearings of the strained members are taken as the points of application of the strains.

Plate Girders.

55. Plate girders shall be porportioned on the assumption that ⅛ of the gross area of the web is available as flange area. The compressed flange shall have the same sectional area as the tension flange; but the unsupported length of flange shall not exceed 20 times its width.

150 In calculating shearing strains and bearing strains on web rivets of plate girders, the hole of the shear acting on the side next the [abutiment] is to be considered as being transferred into the flange angles in a distance equal to the depth of the girder.

56. The shearing strain in web plates shall not exceed 9,000 pounds per square inch for soft steel, and 10,000 pounds per square inch for medium steel; but no web plate shall be less than ⅜ of an inch in thickness.

57. The web shall have [stiffereners] riveted on both sides, with a close bearing against upper and lower flange angles at the ends and inner edges of bearing plates, and at all points of local and concentrated loads, and also, when the thickness of the web is less than 1-60 of the unsupported distance between flange angles, at points throughout the length of the girder, generally not farther apart than the depth of the full web plate, with a maximum limit of 5 feet.

Rolled Beams.

58. The depth of rolled beams shall in no case be less than 1-30 of the span.

Floor Timber.

59. The fibre strain on floor timber from dead and live load without impact shall not exceed 1,200 pounds per square inch on yellow pine and white oak, and 1,000 pounds per square inch on white pine and spruce.

Details of Construction.

Camber.

60. All truss bridges shall be given a proper camber.

Symmetrical Sections.

61. All sections shall preferably be made symmetrical, and the pins placed in the line of the neutral axis.

Adjustable Members.

62. Adjustable members in any parts of structures shall preferably be avoided.

Truss Bridges.

63. All through spans shall have stiff end vertical suspenders.

Eye-Bar Heads.

64. The heads of eye-bars shall not be less in strength than the body of the bar.

151

Nuts.

65. All nuts must be of hexagonal shape.

Portals.

66. All through spans with top lateral bracing shall have portals at each end of span, connected rigidly to end posts. They shall be as deep as the specified head room will allow, and provision shall be made in the end posts for the bending strain produced by wind pressure.

Diagonal.

67. Deck bridges shall have diagonal braces at each panel, of sufficient strength to carry half the maximum strain increment due to wind and centrifugal force, if any.

Gusset Plates.

68. Pony trusses and through plate girders shall be stayed by knee braces or gusset plates at the ends, and at each floor beam or transverse strut.

Bolsters and Expansion Rollers.

69. All bridges exceeding 100 feet in length shall have hinge bolsters on both ends and one end nests of turned friction rollers, running between planed surfaces. Rollers will not be less than 3 inches in diameter; and the pressure per lineal inch of rollers, including impact shall not exceed 1,200 d for steel rollers between steel surfaces (d equals diameter of roller in inches).

Friction Plates.

70. For bridges less than 100 feet in length one end shall be free to move upon smooth surfaces.

Bed Plates.

71. Bed plates shall be so proportioned that the pressure upon masonry (including impact) will not exceed 400 pounds per square inch.

Spacing of Rivets.

72. The pitch of rivets, in the direction of the strain shall never exceed 6 inches, nor 16 times the thickness of the thinnest outside plate connected, and not more than 50 times that thickness at right angles to the strain.

At the ends of compression members the pitch shall not exceed four diameters of the rivets, for a length equal to twice the width of the member.

152 The distance from the edge of any piece to the center of a rivet-hole must not be less than 1½ times the diameter of the rivet, nor exceed 8 times the thickness of the plate; and the distance between centers of rivet-holes shall not be less than 3 diameters of the rivets.

Splices.

73. The butt joints of compression members shall be connected by splices to hold them truly in position; all other joints in riveted work, whether in tension or compression, must be fully spliced.

Tie Plates.

74. All segments of compression members connected by latticing only, shall have tie plates placed as near the ends as practicable. They shall have a length of not less than the greatest depth or width of the member, and a thickness not less than 1-50 of the distance between the rivets connecting them to the compressed members.

Lacing.

75. Single lattice bars shall have a thickness of not less than 1-40, and double bars connected by a rivet at the intersection of not less than 1-60 of the distance between the rivets connecting them to the member; and their width shall be in accordance with American Bridge Company's Standards, generally:

For 15 inch channels, or built sections with 3½ and 4 inch angles: 2½ inches (⅞ inch rivets).

For 12, 10 and 9-inch channels, or built sections with 3-inch angles: 2¼ inches (¾ inch rivets).

For 8 and 7-inch channels, or built sections with 2½ inch angles: 2 inches (⅝ inch rivets).

For 6 and 5-inch channels, or built sections with 2-inch angles: 1¾ inches (½ inch rivets).

Pin Plates.

76. All pin-holes shall be re-inforced by additional material when necessary, so as not to exceed the allowed pressure on the pins. These re-inforcing plates must contain enough rivets to transfer the proportion of pressure which comes upon them, and at least
153 one plate on each side shall extend not less than 6 inches beyond the edge of the tie plate.

Web Splices.

77. Web plates of girders must be spliced at all joints by a plate on each side of the web, capable of transmitting the full strain through splice rivets.

Flange Plates.

78. The flange plates of all girders must be limited in width so as not to extend beyond the outer lines of rivets connecting them with

the angles, more than five inches or more than eight times the thickness of the first plate. Where two or more plates are used in the flanges, they shall either be of equal thickness or shall decrease in thickness outward from the angles.

Workmanship.

Riveted Work Punching.

79. All riveted work shall be punched accurately with holes 1-16 of an inch larger than the size of the rivet, and when the pieces forming one built member are put together the holes must be truly opposite; no [*drifint*] to distort the metal will be allowed; if the hole must be enlarged to admit the rivet, it must be reamed.

Holes for Field Rivets.

80. All holes for field rivets in floor beams and stringer connections and splices in tension members shall be accurately drilled to an iron templet or reamed while the connecting parts are temporarily put together.

Planing and Reaming.

81. In medium steel over ¾ of an inch thick, all sheared edges shall be planed, and all holes shall be drilled or reamed to a diameter of ⅛ of an inch larger than the punched holes, so as to remove all the sheared surface of the metal.

Rivets.

82. The rivet heads must be approved hemispherical shape, and of a uniform size for the same size rivets throughout the work. They must be full and neatly finished throughout the work and concentric with the rivet hole.

All rivets when driven must completely fill the holes, the heads be in full contact with the surface, or countersunk when so required.

154 Riveters.

83. Wherever possible, all rivets shall be machine driven. Power riveters shall be direct-acting machines, worked by steam, hydraulic pressure, or compressed air.

Bolts.

84. When members are connected by bolts which transmit shearing strains, such bolts must have a driving fit.

Neat Finish.

85. The several pieces forming one built member must fit closely together, and when riveted shall be free from twist, bends, or open joints.

All portions of the work exposed to view shall be neatly finished.

Contact Surfaces.

86. All surfaces in contact shall be painted before they are put together.

Forged Work Eye-Bars.

87. The heads of eye-bars shall be made by upsetting, rolling, or forging into shape. Welds in the body of the bar will not be allowed.

The bars must be perfectly straight before boring.

The holes shall be in the center of the head and on the center line of the bar.

All eye-bars shall be annealed.

Machine Work Facing.

88. All abutting surfaces in compression members shall be truly faced to even bearings, so that they shall be in such contact throughout as may be obtained by such means.

The ends of riveted floor girders shall be faced true and square.

Pin Holes.

89. Pin holes shall be bored truly parallel with one another and at right angles to the axis of the member unless otherwise shown in drawings; and in pieces not adjustable for length, no variation of more than 1-64 of an inch for every 20 feet will be allowed in the length between centers of pin holes.

Bars which are to be placed side by side in the structure shall be bored at the same temperature, and shall be of such equal length that upon being piled on each other, the pin shall pass through the holes at both ends at the same time without driving.

Pins.

All pins shall be accurately turned to a gauge, and shall be straight and smooth.

Play in Pin Holes.

90. The clearance between pin and pin holes shall be 1-50 of an inch for pins up to 3½ inches in diameter, which amount shall be gradually increased to 1-32 of an inch for pins 6 inches in diameter and over.

Pilot Nuts.

91. All pins shall be supplied with steel pilot nuts, for use during erection.

Workmanship.

92. All workmanship shall be first-class in every particular.

Steel.

Process of Manufacture.

93. All steel must be made by the Open Hearth process, and if by acid process, shall contain not more than .08 per cent of phosphorus, and if by basic process, not more than .05 per cent of phosphorus, and must be uniform in character for each specified kind.

Finish.

94. The finished bars, plates and shapes, must be free from injurious seams, flaws, or cracks, and have a clean, smooth finish.

Test Pieces.

95. The tensile strength, limit of elasticity and ductility, shall be determined from a standard testpiece, cut from the finished material, of at least ½ square inch section. All broken samples must show a silky fracture of uniform color.

Annealed Test Pieces.

96. Material which is to be used without annealing or further treatment is to be tested in the condition in which it comes from the rolls. When material is to be annealed or otherwise treated before use, the specimen representing such material is to be similarly treated before testing.

Marking.

97. Every finished piece of steel shall be stamped with the blow number identifying the melt.

156 Physical Properties.

98. Steel shall be of three grades; Rivet, Soft and Medium.

Rivet Steel.

99. Rivet steel shall have: Ultimate strength, 48,000 to 58,000 pounds per square inch. Elastic limit, not less than one-half the ultimate strength. Elongation, 26 per cent.

Bending test, 180 degrees flat on itself, without fracture on outside of bent portion.

Soft Steel.

100. Soft Steel shall have: Ultimate strength, 52,000 to 62,000 pounds per square inch. Elastic limit, not less than one-half the ultimate strength. Elongation 25 per cent.

Bending test, 180 degrees flat on itself, without fracture on outside of bent portion.

Medium Steel.

101. Medium steel shall have: Ultimate strength, 60,000 to 70,000 pounds per square inch. Elastic limit, not less than one-half the ultimate strength, Elongation, 22 per cent.

Bending test, 180 degrees to a diameter equal to thickness of piece tested, without fracture on outside of bent portion.

Full Size Test of Steel Bars.

102. Full size test of steel eye-bars shall be required to show not less than 10 per cent elongation in the body of the bar, and tensile strength not more than 5,000 pounds below the minimum tensile strength required in specimen tests of the grade of steel from which they are rolled. The bars will be requried to break in the body but should a bar break in the head, but develop 10 per cent. elongation and the ultimate strength specified, it shall not be cause for rejection, provided not more than one-third of the total number of bars tested break in the head; otherwise the entire lot will be rejected.

Pin Steel.

103. Pins made of either of the above mentioned grades of steel shall on specimen test pieces cut from finished material, fill the requirements of the grade of steel from which they are rolled, excepting the elongation, which shall be decreased 5 per cent. from that specified.

157

Drifting.

104. Punched rivet holes, pitched two diameters from a sheared edge, must stand drifting until the diameter is one third larger than the original hole, without cracking the metal.

Slabs for Plates.

105. The slabs for rolling plates shall be rolled from ingots of at least twice their cross-section.

Pins.

106. Pins up to 7 inches diameter shall be rolled.

Pins exceeding 7 inches diameter shall be forged under a steel hammer striking a blow of at least 5 tons. The Blooms to be used for this purpose shall have three times the sectional area of the finished pins.

Variation in Weights.

107. A variation in cross-section or weight of rolled material of more than 2½ per cent from that specified, may be cause for rejection.

Steel Casting.

108. Steel casting shall be made of Open Hearth Steel containing from .25 to .40 per cent carbon and not over .08 per cent of phosphorus, and shall be practically free from blow holes.

Cast Iron.

109. Except where chilled iron is specified, all castings shall be of tough, grayiron, free from injurious cold shuts or blow holes, true to pattern and of workmanlike finish. Test bars one inch square, loaded in middle between supports 12 inches apart, shall bear 2,500 pounds or over, and deflect 0.15 of an inch before rupture.

Timber.

Timber.

110. The timber shall be strictly first class spruce, white pine, Douglas fir, Southern Yellow pine, or white oak bridge timber; sawed true and out of wind, full size, free from wind shakes, large or loose knots, decayed or sapwood, wormholes or other defects impairing its strength or durability.

Painting.

Painting.

111. All iron work before leaving the shop shall be thoroughly cleaned from all loose scale and rust, and be given
158 one good coating of pure boiled linseed oil, well worked into all joints and open spaces.

In riveted work, the surfaces coming in contact shall be painted before being riveted together.

Pieces which are not accessible for painting after erection shall have two coats of paint.

The paint shall be of good quality of oxide of iron paint, mixed with pure linseed oil, or such as may be specified in contract.

After the structure is erected, the iron work shall be thoroughly and evenly painted with two additional coats of paint, mixed with pure linseed oil, of such quality and color as may be selected.

Pins, pin holes screw threads and other finished surfaces shall be coated with white lead and tallow before being shipped from the shop.

Inspection.

Inspection.

112. All facilities for inspection of material and workmanship shall be furnished by the contractor to competent inspectors, and the engineer, and his inspectors shall be allowed free access to any part of the works in which any portion of the material is made.

The contractor shall furnish, without charge, such specimens (prepared) of the several kinds of material to be used as may be required to determine their character.

Testing.

Testing.

113. Full sized parts of the structure may be tested at the option of the purchaser; but, if tested to destruction, such material shall be paid for at cost, less its scrap value, if it proves satisfactory.

If it does not stand the specified tests, it will be considered rejected material, and be solely at the cost of the contractor, unless he is not responsible for the design of the work.

159 *General Data.*

For the { Construction / Reconstruction of bridge over..... ..... / Repair.

.....at.....City of Omaha

Ordinance No....declaring necessity.
Date of plans and specifications by City Engineer, ...
Date of approval by City Council, ...
Ordinance No. ....providing for appraisement of damages.
Ordinance No. ....fixing the proportion to be constructed and amounts to be paid by companies.
Width of roadway.....
Paving of roadway, ...
Number of sidewalks, ...
Paving on Sidewalks, ...
Floor system, ...
Live Load.....on roadway; .....on sidewalk.
Number of street car tracks, ...
Spacing of street car tracks, ...
Clearance above railroad tracks, ...
Clearance above street, ...
Longitudinal clearance from face of abutments, piers, etc., to center line of railroad tracks, ...
Maximum grade, ...
Remarks, ...
.....
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.....
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City Engineer,

160 *General Data.*

For the { Construction / Reconstruction / Repair. } of bridge over.....
.....at.....City of Omaha

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Longitudinal clearance from face of abutments, piers, etc., to center line of railroad tracks, ...
Maximum grade, ...
Remarks, ...
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(S'd) ANDREW ROSEWATER,
City Engineer.

Approved July 12, 1910.

DAN B. BUTLER,
City Clerk.
G. F. BRUCKER,
President City Council.

Approved, July 13, 1910.

G. F. BRUCKER,
Acting Mayor.

161 COMPLAINANT'S EXHIBIT No. 5 (C. W. P.).

General Specifications for Steel Highway Bridges and Viaducts, City of Omaha, 1908.

Revised 1909.

General Description.

Material.

1. All structures to be wholly of rolled steel, either soft or medium except the floors which may be either (*a*) an accepted form of paving resting on a concrete base which is carried by buckle plates; (*b*) an accepted form of paving carried by a reinforced concrete floor system; (*c*) cresoted block paving carried on creosoted planking; (*d*) plank flooring carried by steel stringers or joints.

Cast iron or cast steel will be permitted only in machinery of movable bridges and in special cases for shoes and bearings.

Type of Bridge.

2. The following type of bridges are recommended:
Spans up to 25 feet, Rolled beams.
Spans 25 to 40 feet, Rolled beams or plate girders.
Spans 40 to 80 feet, Riveted plate or lattice girders.
Spans 80 to 120 feet, Lattice Girders.
Spans over 120 feet Lattice girders or pin connected trusses.

Clearance.

3. Minimum clearance over railroad tracks to be 24 feet unless otherwise specified or allowed by the railroad company.

Minimum clearance over streets to be 15 feet.

Minimum longitudinal clearance from track centers to be 8 feet unless otherwise specified or allowed by the railroad company.

For bridges carrying street cars, the clear width from the centers of track- shall not be less than 6½ feet at height exceeding one foot six inches, above the top of rails where the tracks are straight.

In determining the clearance on curves, the extreme length of street car shall be taken as 45 feet, the width eight feet, and the distance between centers of trucks as 20 feet, unless otherwise specified.

162 Head Room.

4. For all through bridges there shall be a clear head-room of not less than 15 feet above the floor for a width of at least six feet over car track.

Width.

5. Width of bridge to be as conditions demand. The width between centers of trusses shall in no cass be less than 1/20 of the span between centers of end pins or shoes.

Grade.

6. Maximum grade to be six per cent unless otherwise specified.

Foot Walks.

7. Where foot-walks are required, they will generally be placed outside of the trusses and girders and supported by cantilever connection.

Hand Railing.

8. A strong and suitable hand railing will be placed at each side of the bridge and be rigidly attached to the superstructure.

Truss Bridges.

Length of Span.

9. In calculating strains, the length of span shall be understood to be distance between centers of end pins for trusses, and "c" to "c" of trusses for cross floor beams.

Form of Trusses.

10. Form of bridge truss to be left to the discretion of the designing engineer unless determined by local conditions.

Floor Beams.

11. All floor beams in through bridges shall be riveted to the posts above the pins.

Stringers.

12. The floor stringers to be symmetrically placed under rails of present and future maximum number of street railway tracks and, if possible, one stringer to be placed under each rail of the above conditions of tracks; steel stringers shall preferably be riveted to the web of the floor beams.

Lateral Bracing.

13. All lateral sway and postal bracing must be made of shapes capable of resisting compression as well as tension and must have riveted connections.

163 All bridges must have lateral struts at the ends except where end floor beams act as such.

Girder Bridges.

Length of Span.

14. In calculating strains, the length of span shall be understood to be the distance between centers of bearings and "c" to "c" of girders for floor beams.

Form of Girders.

15. Form of girders to be left to the discretion of the designing engineer unless determined by local conditions.

Floor Beams.

16. All floor beams to be securely fastened to girders.

Lateral Bracing.

17. All lateral bracing must be made of shapes capable of resisting compression and tension and must have riveted connections.

Bents and Towers.

Bents.

18. Bents shall, as a general rule, be composed of two or more supporting columns, depending on width of bridge, thoroughly connected and with struts between the feet of the column-. The foot of the columns must be secured to an anchorage capable of resisting double the specified wind forces.

Towers.

19. Each tower shall have sufficient base longitudinally to be stable when standing alone without other support than its anchorage. Tower spans for high trestles shall not be less than 30 feet.

Floor System.

Paving.

20. The accepted form of paving and creosoted block paving to be as per specifications, City of Omaha.

Art. 1-(*a*).

Buckle Plates.

21. Buckle plates will not be less than 5/16 inch thick and will crown two inches at the centers. Plates of this thickness and
164 crown may be used to widths of four feet under the roadway and five feet under the sidewalks.

Concrete.

22. The concrete over buckle plates shall be at least three inches thick on the roadway and two inches thick on the sidewalks over the highest point to be covered, not counting rivet or bolt heads.

Concrete to be composed of one part Portland Cement, three parts sand and six parts stone.

Concrete to be waterproof if specified.

Art. 1-(*b*).

Concrete.

23. Concrete to be composed of one part Portland Cement, two parts sand and four parts stone.

Reinforcement.

24. Reinforcement to be a recognized first class make, of Mechanical Bond Bar, squares to be recommended. Small bars and a close spacing to be used in preference to large bars and a wide spacing. Temperature to be allowed for at the rate of 0.4 square inches of reinforcement per square foot of cross section of concrete which is equivalent to a range of temperature of 150 degrees.

Art. 1-(*c*).

Floor Planking.

25. Floor planking under paving to be first class Oregon Fir, creosoted. Minimum size of 5″ x 8″ S 4 S to be used. Flooring to have a driving fit, so that cracks entirely close. To be fastened to stringers by spiking with railroad track spikes underneath the flooring.

Art. 1-(*d*).

26. For single thickness, the roadway planks shall not be less than three inches thick, and shall be laid transversely with ¼ inch opening.

Additional Roadway Planks.

27. When an additional wearing surface is specified for the roadway, it shall be 1½ inches thick, and the lower planks of a minimum thickness of 2½ inches, shall be laid diagonally and with ½ inch openings.

165 Foot-walk Planks.

28. The foot walk planks shall not be less than three inches thick nor more than six inches wide, spaced with ½ inch openings.

Plank Laid.

29. All plank shall be laid with the heart side down, shall have full and even bearing on and be firmly attached to the stringers.

Curbs and Guards.

30. Bridges with buckle plate and reinforced concrete floors will have a suitable masonry or metal curb on each side of the roadway to hold paving and act as a wheel guard. The wheel guard must be so arranged that it can be removed and replaced when worn or injured. There will also be a metal edging strip on each side of the footwalks to hold the paving in place.

Bridges with wooden floors to be provided with wheel guards of a cross section not less than six inches by four inches on each side of the roadway. They shall be blocked upon from the floor plank with blocks two inches by six inches by 12 inches long, nor over five feet apart, center to center, held in place by one ¾ inch bolt passing through the center of each blocking piece and securely fastened to the stringers below. The wheel guards shall be spliced with half and half joints with six inches lap over a blocking piece.

Slope of Sidewalks.

31. The sidewalks shall slope one inch in five feet preferably towards the roadway.

Crown of Roadway.

32. The roadway shall crown from curb to center one inch for each ten feet of the roadway width.

Depth of Curb.

33. The depth of curb will generally be six inches.

Elevation Top of Concrete.

34. The sub-grade, top of concrete, for the sidewalks will be — inches below final grade and slope.

The concrete over roadway will be laid to the correct crowning and elevation to allow — inches for the selected paving.

166

Drainage.

35. Drainage to be provided for by a suitable inlet and down spout running to the ground, the same to be placed each side of roadway, and about 100 feet apart.

Loads.

Dead Load.

36. All the structures shall be proportioned to carry the following loads:

1st. The weight of the metal in the structure and floor.

2nd. The weight of the paving and concrete or wooden floor.

These two items taken together shall constitute "the dead load."

In determining the weight of the structure for the purpose of calculating strains, the following weights shall be assumed in determining the weight of the floor system.

Hard woods, 4½ pounds per foot B. M.

Spruce and white pine, 3½ pounds per foot B. M.

Concrete, 150 pounds per cubic foot.

Paving brick 150 pounds per cubic foot.

Asphaltum, 130 pounds per cubic foot.

Sand, 110 pounds per cubic foot.

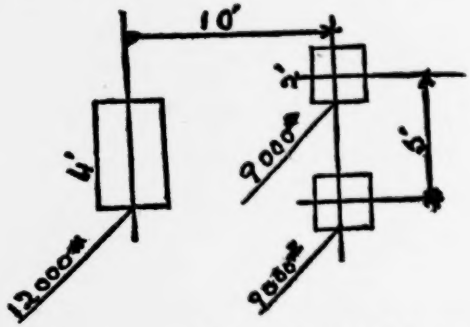
Granite stone, 160 pounds per cubic foot.

Street Railway tracks, 100 pounds per lineal foot of track.

Live Load.

37. "A" A live load of 150 pounds per square foot of roadway and 100# per square foot of sidewalk.

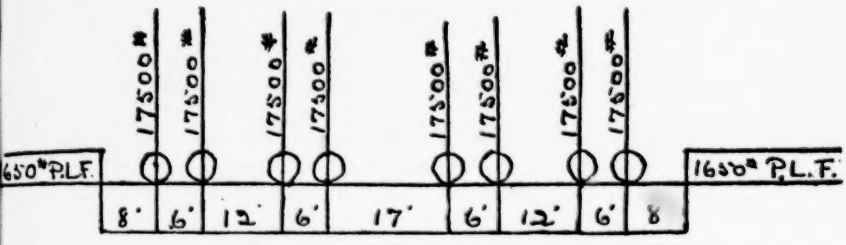
"B" For the floor and its support on any part of the roadway, a 15-ton road roller as per diagram below.



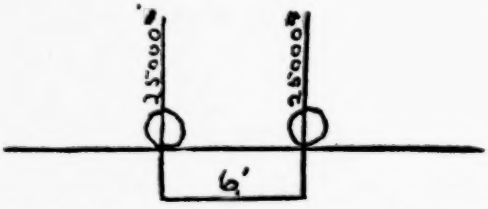
167 When street car tracks are to be provided for—

"C" A moving load per track consisting of two trolley cars weighing 35 tons each loaded, coupled together and following as well as preceded by a uniform load of 1650 pounds R. L. F. Trains assumed to occupy a width of 11 feet. Upon the remaining portions of the roadway and sidewalks, a uniform load of 150 pounds per square foot.

Loads of trolley cars distributed as per diagram:



"D" For floor system, a concentrated load of 25 tons on two axles, 6′ center per tracks.



The structure to be proportioned for the above loading which give the maximum stresses.

Impact.

38. To compensate for the effect of impact and vibration, 50 per cent of the maximum strains resulting from the above mentioned live load shall be added thereto.

Wind Pressure.

39. The wind pressure shall be assumed acting in either direction horizontally.

1st. At 30 pounds per square foot on the exposed surface of all trusses and the floor as seen in elevation, in [accition] to a horizontal live load of 150 pounds per lineal foot of the span moving across the bridge.

168 2nd. At 50 pounds per square foot on the exposed surface of all trusses and the floor system.

The greatest result shall be assumed in proportioning the parts.

Longitudinal forces due to momentum of street cars.

40. The strains produced in the bracing of the trestle towers, in any members, of the trusses, or in the attachment of the girders or trusses to their bearings by suddenly stopping the maximum electric car trains or any part of the work must be provided for; the coefficient of friction of wheels sliding upon the rails being assumed as 0.2.

Centrifugal Force.

41. When the structure carrying a street railway is on a curve, the additional effects due to the centrifugal force shall be considered.

Stresses in Trestle.

42. In trestles towers the bracing and columns shall be proportioned to resist the following lateral forces, in addition to the strains from dead and live loads.

The trusses loaded or unloaded, the lateral pressures specified above; and a lateral pressure of 100 pounds for each vertical lineal foot of the trestle bents.

Temperature.

43. Variation in temperature to an extent of 150 degrees shall be provided for.

Proportion of Parts.

Least Thickness of Materials.

44. No material shall be used less than ⅜ of an inch in thickness except for lining or filling vacant places.

Permissible Tensile Strains.

45. All parts of the structure shall be so proportioned that the sum of the maximum loads, together with the impact, shall not [course] the tensile strain to exceed:

On soft steel 15,000 pounds per square inch.

On medium steel 17,000 pounds per square inch.

The same limiting unit strains shall also be used for members strained by wind pressure, centrifugal force, or momentum of train, if any.

169 ### Net Sections.

46. Net sections must be used in all cases in calculating tension members, and in deducting rivet holes, they must be taken ⅛ of an inch larger than the size of the rivets.

Pin connected riveted tension members shall have a net section through the pin hole 25 per cent in excess of the net section of the body of the member. The net section back of the pin hole shall be at least 0.75 of the net section through the pin hole.

Angles subject to direct tension must be connected by both legs, or the section of one leg only will be considered as effective.

Permissible Compressive Strains.

47. For compression members these permissible strains of 15,000 and 17,000 pounds per square inch shall be reduced in proportion to

the [ration] of the length to the least radius of gyration of the section by the following formula:

For soft steel,

For medium steel,

Where

p—permissible working strains per square inch in compression.

l—length of pieces in inches, center to center connections.

r—least radius of gyration of the section in inches.

Maximum Length of Compression Members.

48. No compression members however shall have a length exceeding 120 times its least radius of gyration, excepting those for wind bracing, which may have a length not exceeding 140 times the least radius of gyration.

Reversal of Strains.

49. The reversal of strain in members of bridges need not be considered, but the members shall be proportioned for the strain giving the larger section.

Combined Strains.

50. In case the maximum strains due to wind, and centrifugal force added to the maximum strains due to vertical loading (including impact) shall exceed the following limits:

On soft steel, 19,000 pounds per square inch.

On medium steel 21,000 pounds per square inch, properly reduced for compression, addition must be made to such sections until these limits are not exceeded.

170 The permissible strains for the connections shall be increased proportionately.

Should the strains be reversed in any possible case, proper provision must be made for such strains in the opposite direction.

Transverse Loading of Tension or Compression Members.

51. When the floor system rests directly on the top or bottom chord, the latter must be so proportioned that the algebraic sum of the strains per square inch on the outer fibre, resulting from the direct compression or tension and ¾ of the maximum bending moment (the chord being considered as a beam of one panel length, supported at the ends), shall not exceed the before mentioned limiting strains in tension or compression, the proper amount of impact being added to each kind of loading.

The bending moment at panel points shall be assumed equal to that at the center, but in opposite direction.

All other members which are subject to direct strain in addition to bending moment are to be similarly calculated.

Shearing and Bending Strains.

52. The shearing strain on rivets, belts or pins, per square inch of section, shall not exceed 11,000 pounds for soft steel; and 12,000 pounds for medium steel; and the pressure upon the bearing surface of the projected semi-intrados (diameter x thickness) of the rivet, bolt or pin hole, shall not exceed 22,000 pounds per square inch for soft steel, and 24,000 pounds for medium steel.

Field Connections.

53. In field connections the number of rivets or bolts thus found shall be increased 25 per cent. if driven by hand, but 10 per cent for rivets driven by power.

Bending Strains on Pins.

54. The bending strain on the extreme fibre of pins shall not exceed 22,000 pounds per square inch for soft steel, and 25,000 pounds per square inch for medium steel, when centers of bearings of the strained members are taken as the points of application of the strains.

Plate Girders.

55. Plate girders shall be proportioned on the assumption that 1/8 of the gross area of the web is available as flange area. The
171 compressed flange shall have the same sectional area as the tension flange; but the unsupported length of flange shall not exceed 20 times its width.

In calculating shearing strains and bearing strains on web rivets of plate girders, the whole of the shear acting on the side next the abutment is to be considered as being transferred into the flange angles in a distance equal to the depth of the girder.

56. The shearing strain in web plates shall not exceed 9,000 pounds per square inch for soft steel, and 10,000 pounds per square inch for medium steel; but no web plate shall be less than 3/8 of an inch in thickness.

57. The web shall have stiffeners riveted on both sides, with a close bearing against upper and lower flange angles at the ends and inner edges of bearing plates, and at all points of local and concentrated loads, and also, when the thickness of the web is less than 1-60 of the unsupported distance between flange angles, at points throughout the length of the girder, generally not farther apart than the depth of the full web plate, with a maximum limit of 5 feet.

Rolled Beams.

58. The depth of rolled beams shall in no case be less than 1-30 of the span.

Floor Timber.

59. The fibre strain on floor timber from dead and live load without impact shall not exceed 1,200 pounds per square inch on yellow pine and white oak, and 1,000 pounds per square inch on white pine and spruce.

Details of Construction.

Camber.

60. All truss bridges shall be given a proper camber.

Symmetrical Sections.

61. All sections shall preferably be made symmetrical, and the pins placed in the line of the neutral axis.

Adjustable Members.

62. Adjustable members in any parts of structures shall preferably be avoided.

Truss Bridges.

63. All through spans shall have stiff and vertical suspenders.

172 Eye-bar Heads.

64. The heads of eye-bars shall not be less in strength than the body of the bar.

Nuts.

65. All nuts must be of hexagonal shape.

Portals.

66. All through spans with top lateral bracing shall have portals at each end of span, connected rigidly to end posts. They shall be as deep as the specified head room will allow, and provision shall be made in the end post for the bending strain produced by the wind pressure.

Diagonal.

67. Deck bridges shall have diagonal braces at each panel, of sufficient strength to carry half the maximum strain increment due to wind and centrifugal force, if any.

Gusset Plates.

68. Pony trusses and through plate girders shall be stayed by knee braces or gusset plates at the ends, and at each floor beam or transverse strut.

Bolsters and Expansion Rollers.

69. All bridges exceeding 100 feet in length shall have hinge bolsters on both ends and one end nests of turned friction rollers, running between planed surfaces. Rollers will not be less than 3 inches in diameter; and the pressure per lineal inch of rollers, including impact shall not exceed $1200d$ for steel rollers between steel surfaces (d equals diameter of roller in inches.)

Friction Plates.

70. For bridges less than 100 feet in length one end shall be free to move upon smooth surfaces.

Bed Plates.

71. Bed plates shall be so proportioned that the pressure upon masonry (including impact) will not exceed 400 pounds per square inch.

Spacing of Rivets.

72. The pitch of rivets, in the direction of the strain shall never exceed 6 inches, nor 16 times the thickness of the thinnest outside plate connected, and not more than 50 times that thickness at right angles to the strain.

173 At the ends of compression members the pitch shall not exceed four diameters of the rivets, for a length equal to twice the width of the member.

The distance from the edge of any piece to the center of a rivet-hole must not be less than 1½ times the diameter of the rivet, nor exceed 8 times the thickness of the plate; and the distance between centers of rivet-holes shall not be less than 3 diameters of the rivets.

Splices.

73. The butt joints of compression members shall be connected by splices to hold them truly in position; all other joints in riveted work, whether in tension or compression, must be fully spliced.

Tie Plates.

74. All segments of compression members connected by latticing only, shall have tie plates placed as near the ends as practicable. They shall have a length of not less than the greatest depth or width of the member, and a thickness not less than 1-50 of the distance between the rivets connecting them to the compressed members.

Lacing.

75. Single lattice bars shall have a thickness of not less than 1-40, and double bars connected by a rivet at the intersection of not less than 1-60 of the distance between the rivets connecting them to the member; and their width shall be in accordance with American Bridge Company's standards, generally:

For 15 inch channels, or built sections with 3½ and 4 inch angles: 2½ inches (⅞ inch rivets).

For 12, 10 and 9 inch channels or built sections with 3-inch angles: 2¼ inches (¾ inch rivets).

For 8 and 7-inch channels, or built sections with 2½ inch angles: 2 inches (⅝ inch rivets).

For 6 and 5-inch channels, or built sections with 2-inch angles: 1¾ inches (½ inch rivets).

Pin Plates.

76. All pin-holes shall be reinforced by additional material when necessary, so as not to exceed the allowed pressure on the
174 pins. These reinforcing plates must contain enough rivets to transfer the proportion of pressure which comes upon them, and at least one plate on each side shall extend not less than 6 inches beyond the edge of the tie plate.

Web Splices.

77. Web plates of girders must be spliced at all joints by a plate on each side of the web, capable of transmitting the full strain through splice rivets.

Flange Plates.

78. The flange plates of all girders must be limited in width so as not to extend beyond the outer lines of rivets connecting them with the angles, more than five inches or more than eight times the thickness of the first plate. Where two or more plates are used in the flanges, they shall either be of equal thickness or shall decrease in thickness outward from the angles.

Workmanship.

Riveted Work Punching.

79. All riveted work shall be punched accurately with holes 1-16 of an inch larger than the size of the rivet, and when the pieces forming one built member are put together the holes must be truly opposite; no [drifint] to dis-ort the metal will be allowed; if the hole must be enlarged to admit the rivet, it must be reamed.

Holes for Field Rivets.

80. All holes for field rivets in floor beam and stringer connections and splices in tension members shall be accurately drilled to an iron templet or reamed while the connecting parts are temporarily put together.

Planing and Reaming.

81. In medium steel over ¾ of an inch thick, all sheared edges shall be planed, and all holes shall be drilled or reamed to a diameter of ⅛ of an inch larger than the punched holes, so as to remove all the sheared surface of the metal.

Rivets.

82. The rivet heads must be approved hemispherical shape, and of a uniform size for the same size rivets throughout the work.

They must be full and neatly finished throughout the work and concentric with the rivet hole.

175 All rivets when driven must completely fill the holes, the heads be in full contact with the surface, or countersunk when so required.

Riveters.

83. Wherever possible, all rivets shall be machine driven. Power riveters shall be direct-acting machines, worked by steam, hydraulic pressure, or compressed air.

Bolts.

84. When members are connected by bolts which transmit shearing strains, such bolts must have a driving fit.

Neat Finish.

85. The several pieces forming one built member must fit closely together, and when riveted shall be free from twist, bends, or open joints.

All portions of the work exposed to view shall be neatly finished.

Contact Surfaces.

86. All surfaces in contact shall be painted before they are put together.

Forged Work Eye-Bars.

87. The heads of eye-bars shall be made by upsetting, rolling, or forging into shape. Welds in the body of the bar will not be allowed.

The bars must be perfectly straight before boring.

The holes shall be in the center of the head and on the center line of the bar.

All eye-bars shall be annealed.

Machine Work Facing.

88. All abutting surfaces in compression members shall be truly faced to even bearings, so that they shall be in such contact throughout as may be obtained by such means.

The ends of riveted floor girders shall be faced true and square.

Pin Holes.

89. Pin holes shall be bored truly parallel with one another and at right angles to the axis of the member unless otherwise shown in drawings; and in pieces not adjustable for length, no variation of more than 1-64 of an inch for every 20 feet will be allowed in the length between centers of pin holes.

176 Bars which are to be placed side by side in the structure shall be bored at the same temperature, and shall be of such

equal length that upon being piled on each other, the pin shall pass through the holes at both ends at the same time without driving.

Pins.

All pins shall be accurately turned to a gauge, and shall be straight and smooth.

Play in Pin Holes.

90. The clearance between pin and pin holes shall be 1-50 of an inch for pins up to 3½ inches in diameter, which amount shall be gradually increased to 1-32 of an inch for pins 6 inches in diameter and over.

Pilot Nuts.

91. All pins shall be supplied with steel pilot nuts, for use during erection.

Workmanship.

92. All workmanship shall be first class in every particular.

Steel.

Process of Manufacture.

93. All steel must be made by the Open Hearth process, and if by acid process shall contain not more than .08 per cent of phosphorus, and if by basic process, not more than .05 per cent of phosphorus, and must be uniform in character for each specified kind.

Finish.

94. The finished bars, plates and shapes, must be free from injurious seams, flaws, or cracks, and have a clean, smooth finish.

Test Pieces.

95. The tensile strength, limit of elasticity and ductility, shall be determined from a standard test piece, cut from the finished material, of at least ½ square inch section. All broken samples must show a silky fracture of uniform color.

Annealed Test Pieces.

96. Material which is to be used without annealing or further treatment is to be tested in the condition in which it comes from the rolls. When material is to be annealed or otherwise treated before use, the specimen representing such material is to be similarly treated before testing.

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Marking.

97. Every finished piece of steel shall be stamped with the blow number identifying the melt.

Physical Properties.

98. Steel shall be of three grades: Rivet, Soft and Medium.

Rivet Steel.

99. Rivet steel shall have: Ultimate strength, 48,000 to 58,000 pounds per square inch. Elastic limit, not less than one-half the ultimate strength. Elongation, 26 per cent.

Bending test, 180 degrees flat on itself, without fracture on outside of bent portion.

Soft Steel.

100. Soft Steel shall have: Ultimate strength, 52,000 to 62,000 pounds per square inch. Elastic limit, not less than one-half the ultimate strength. Elongation, 25 per cent.

Bending test, 180 degrees flat on itself, without fracture on outside bent portion.

Medium Steel.

101. Medium steel shall have: Ultimate Strength, 60,000 to 70,000 pounds per square inch. Elastic limit, not less than one-half the ultimate strength, Elongation, 22 per cent.

Bending test, 180, degrees to a diameter equal to thickness of piece tested, without a fracture on outside of bent portion.

Full Size Test of Steel Bars.

102. Full size test of steel eye-bars shall be required to show not less than 10 per cent elongation in the body of the bar, and tensile strength not more than 5,000 pounds below the minimum tensile strength required in specimen tests of the grade of steel from which they are rolled. The bars will be required to break in the body but should a bar break in the head, but develop 10 per cent, elongation and the ultimate strength specified, it shall not be cause for rejection, provided not more than one-third of the total number of bars tested break in the head; otherwise the entire lot will be rejected.

Pin Steel.

103. Pins made of either of the above mentioned grades of steel shall on specimen test pieces cut from finished material, fill the requirements of the grade of steel from which they are rolled, excepting the elongation, which shall be decreased 5 per cent, from that specified.

178 Drifting.

104. Punched rivet holes, pitched two diameters from a sheared edge, must stand drifting until the diameter is one third larger than the original hole, without cracking the metal.

Slabs for Plates.

105. The slabs for rolling plates shall be rolled from ingots of at least twice their cross-section.

Pins.

106. Pins up to 7 inches diameter shall be rolled.

Pins exceeding 7 inches diameter shall be forged under a steel hammer striking a blow of at least 5 tons. The blooms to be used for this purpose shall have three times the sectional area of the finished pins.

Variation in Weights.

107. A variation in cross-section or weight of rolled material of more than 2½ per cent from that specified, may be cause for rejection.

Steel Casting.

108. Steel casting shall be made of Open Hearth Steel containing from .25 to .40 per cent carbon and not over .08 per cent of phosphorus, and shall be practically free from blow holes.

Cast Iron.

109. Except where chilled iron is specified, all castings shall be of tough gray iron, free from injurious cold shuts or blow holes, true to pattern, and of workmanlike finish. Test bars one inch square, loaded in middle between supports 12 inches apart, shall bear 2,500 pounds or over, and deflect 0.15 of an inch before rupture.

Timber.

Timber.

110. The timber shall be strictly first class spruce, white pine, Douglas Fir, Southern Yellow pine, or white oak bridge timber; sawed true and out of wind, full size, free from wind shakes, large or loose knots, decayed or sapwood, wormholes or other defects impairing its strength or durability.

Painting.

Painting.

111. All iron work before leaving the shop shall be thoroughly cleaned from all loose scale and rust, and be given one good
179 coating of pure boiled linseed oil, well worked into all joints and open spaces.

In riveted work, the surfaces coming in contact shall be painted before being riveted together.

Pieces which are not accessible for painting after erection shall have two coats of paint.

The paint shall be of good quality of oxide of iron paint, mixed with pure linseed oil, or such as may be specified in contract.

After the structure is erected, the iron work shall be thoroughly and evenly painted with two additional coats of paint, mixed with pure linseed oil, of such quality and color as may be selected.

Pins, pin holes, screw threads and other finished surfaces shall be coated with white lead and tallow before being shipped from the shop.

Inspection.

Inspection.

112. All facilities for inspection of material and workmanship shall be furnished by the contractor to competent inspectors, and the engineer, and his inspectors shall be allowed free access to any part of the works in which any portion of the material is made.

The contractor shall furnish, without charge, such specimens (prepared) of the several kinds of material to be used as may be required to determine their character.

Testing.

Testing.

113. Full sized parts of the structure may be tested at the option of the purchaser; but, if tested to destruction, such material shall be paid for at cost, less its scrap value, if it proves satisfactory.

If it does not stand the specified tests, it will be considered rejected material, and be solely at the cost of the contractor, unless he is not responsible for the design of the work.

180 *General Data.*

For the { Construction / Reconstruction / Repair } of bridge over.....

..... at .....City of Omaha.

Ordinance No. ..... declaring necessity.
Date of plans and specifications by City Engineer.....
Date of approval by City Council.....
Ordinance No. ..... providing for appraisement of damages.
Ordinance No. ..... fixing the proportion to be constructed and amounts to be paid by companies.
Width of roadway .....
Paving of roadway .....
Number of sidewalks .....
Paving on sidewalks .....
Floor system .....
Live Load ..... on roadway ..... on sidewalk.
Number of street car tracks.....
Spacing of street car tracks.....
Clearance above railroad tracks.....
Clearance above street .....
Longitudinal clearance from face of abutment, piers, etc., to center line of railroad tracks .....
Maximum grade .....

Remarks .....
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....., *City Engineer.*

General Data.

For the { Construction / Reconstruction / Repair } of bridge over.....

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Date of plans and specifications by City Engineer.....
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181 Width of roadway .....
Paving of roadway.....
Number of sidewalks .....
Paving on sidewalks .....
Floor system .....
Live Load ..... on roadway ..... on sidewalk.
Number of street car tracks.....
Spacing of street car tracks.....
Clearance above railroad tracks.....
Clearance above street .....
Longitudinal clearance from face of abutment, piers, etc., to center line of railroad tracks .....
Maximum grade .....

Remarks .....
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(Sd.) ANDREW ROSEWATER,
City Engineer.

Exhibit 6. C. W. P.

Deed of Conveyance from Metropolitan Cable Railway Company of Omaha to Omaha Street Railway Company.

Know All Men by These Presents, that Metropolitan Cable Railway Company of Omaha, a street railway corporation created and existing under the laws of the State of Nebraska, being first duly authorized so to do by the consent in writing of the holders of all of the capital stock of said company, and by resolution of the Board of Directors of said Company, in consideration of Ten Thousand ($10,000) Dollars, and other valuable consideration, the receipt whereof is hereby acknowledged, has granted, bargained, sold, assigned, set over, released, conveyed and confirmed, and by these presents does grant, bargain, sell, convey, transfer, assign, set over, release, and confirm unto Omaha Street Railway Company, a street railway corporation created and existing under the laws of
182 the State of Nebraska, and to its successors and assigns forever, all the right, title, interest, claim or demand whatsoever, which the Metropolitan Cable Railway Company of Omaha now has or is entitled to, or which it shall or may at any time hereafter acquire or become entitled to, in any manner whatsoever, of, in, and to all and singular its rights, privileges and franchises, to construct, maintain and operate street railroads in the county of Douglas, state of Nebraska, and all and singular its street railways and lines now constructed, or hereafter to be constructed, in, over, and along the streets, avenues and alleys in the county of Douglas, State of Nebraska, and in the City of Omaha, State of Nebraska, together with all lines constructed, or to be constructed under the existing articles of incorporation, franchises and permits, or any amendments thereof in said county of Douglas, or in the said city of Omaha; also all the lands, tenements and hereditaments, rights of way, easements and privileges, now owned by it, or which it may hereafter acquire, for the purpose of the right of way for said railway, or in any wise appertaining thereto; also all real estate, tracks, poles, wires, bridges, culverts and other structures of every kind whatsoever; also all personal property now owned by it, and all claims, rights and demands of every kind whatsoever, whether now held or at any time hereafter acquired, or to which it has any right of possession; together with all cars and other rolling stock or equipment, and all motors, implements, tools, machinery and materials whatsoever; and all and singular the endowments, income and advantages, tenements, hereditaments and appurtenances to the above mentioned railway, premises or property belonging, or in any wise appertaining, and the reversion or reversions, remainder and remainders, tolls, incomes, rents, issues and profits; and also all the real estate, right, title, interest, property, possession, claim and demand whatsoever as well in law as in equity present or prospective, of the said Metropolitan Cable Railway Company of Omaha.

To Have and to Hold the above described premises, property,

rights, privileges, franchises and appurtenances unto the said Omaha Street Railway Company, its successors and assigns forever.

In Witness Whereof, the Metropolitan Cable Railway Company of Omaha has caused its corporate seal to be hereunto affixed, and these presents to be signed by its President and Secretary, and to
183 be delivered as its act and deed this Eleventh day of November, 1902.

METROPOLITAN CABLE RAILWAY COMPANY OF OMAHA,
By —— ——, *President.*

Attest:

—— ——, *Secretary.*

STATE OF NEBRASKA,
County of Douglas, ss:

Be It Remembered, that on this — day of November, 1902, before me, a notary public, within and for said County of Douglas, state of Nebraska, duly appointed, commissioned and qualified, personally appeared —— ——, President, and —— ——, Secretary, of the Metropolitan Cable Railway Company of Omaha, to me personally known to be the identical persons whose names are affixed to the above deed as President and Secretary respectively, of the Metropolitan Cable Railway Company of Omaha, the grantor therein named, and severally acknowledged that they executed and delivered the same for, and on behalf of said Metropolitan Cable Railway Company of Omaha, as President and Secretary thereof, and that the same is its voluntary act and deed for the uses and purposes therein set forth, and that the execution thereof is also the voluntary act and deed of each of the said parties respectively, as such President and Secretary, and that the executions of this dee dwas authorized by a resolution of the Board of Directors of the Metropolitan Cable Railway Company of Omaha pursuant to consent in writing thereto duly executed by the holders of all of the outstanding capital stock of the said Metropolitan Cable Railway Company of Omaha.

In Witness Whereof, I have hereunto set my hand and official seal this — day of November, 1902.

—— ——,
Notary Public in and for Douglas County, Nebraska.

Copy of Deed from Metropolitan Cable Railway Co. to Omaha Street Ry. Co. Filed Dec. 22, 1902. Book 255, p. 597.

Exhibit 7—C. W. P.

Ordinance No. 1395.

An Ordinance providing for the submission to the electors of the City of Omaha the question of consent to the construction and operation of a Street Railroad on and through the streets of
184 said City by the Metropolitan Cable Railway Company of Omaha.

Be it ordained by the City Council of the City of Omaha:

Section 1. That under the provisions of an act entitled "An act to provide for the incorporation of street railway companies within cities of this State" approved February 15th, 1887, a special election is hereby called and ordered to be held in the City of Omaha, Douglas County, Nebraska, on the thirteenth (13) day of June, A. D. 1887, and the Mayor is hereby requested and directed to properly call and give notice of said election for the purpose of giving the qualified voters of said City the opportunity to grant or refuse their consent to the Metropolitan Cable Railway Company of Omaha to construct, operate and maintain a street railway, with cars either propelled by electricity, compressed air, horse power, cable, or by such other motor, except steam locomotive, as may be practicable for the operation of a street railway, together with suitable turnouts, connections and turntables upon the streets of said City, hereinafter described and set forth in the question to be so submitted, for the term and period of thirty years from the day of said election.

Section 2. The place of voting shall be the usual voting place in the said city, and shall be named in the notice calling such election. The return thereof shall be made to the City Council of Omaha. The judges and clerks of the election shall be appointed in the same manner as for other city elections.

The notice shall be published for at least ten days before said election. The notice shall contain the termini of said street railroad and said streets and avenues as above over which it is proposed to construct and operate said cable line street railroad. It shall also contain the form of the question to be submitted to said electors.

Section 3. The form in which said question shall be submitted, shall be as follows: "Shall consent, right of way and authority, subject to the provisions of "Ordinance No., —" be given to the Metropolitan Cable Railway Company of Omaha, to construct, maintain and operate a cable line street railroad with suitable turnouts, connections and turn tables in the City of Omaha, for the term and period of thirty years, over, across, along, in and upon the streets and avenues and part or parts of the streets and avenues of said City of Omaha, which are hereinafter named and designated,
185 and between the terminal points thereof, which are hereby fixed and designated as parts of the said streets and avenues upon and over which it is proposed to construct and operate said cable line street railroad, that is to say: Mason Street, Marcy Street,

Leavenworth Street, Jones Street, Jackson Street, Howard Street, Harney Street, Farnam Street, Douglas Street, Dodge Street, west of 20th Street, Capitol Avenue, Davenport Street, Chicago Street, Cass Street, California Street, Webster Street, Burt Street, Cuming Street, Hamilton Street, and Izard Street, between 11th Street and the city limits on the west, and 11th street, 12th Street, 14th Street, 15th Street, and 16th Street, between Mason and Cuming Street; and 11th, 12th, 14th, 15th, and 16th from Mason to Vinton; Vinton from 11th to Green, 17th Street, 19th Street, between Howard and Izard Street; 21st Street, 22nd Street, 23rd Street, between Dodge Street and Izard Street; and one of its termini shall be at the intersection of two of the previous above named streets, and the other near the west line of the southeast quarter of section thirteen (13), township fifteen (15), Range Thirteen (13), east, in Douglas County, Nebraska.

SECTION 4. All votes "Yes" on said question shall be deemed and considered as in favor of giving consent to the construction and operation of said proposed street railroad, as herein proposed, subject to all the conditions of this ordinance, and all votes "No" on said question shall be deemed and considered as against the construction and operation of said proposed street railroad. If a majority of the electors of the city of Omaha voting at such special election, vote in favor of giving such consent, right of way and authority it shall vest such consent, right of way and authority in the Metropolitan Cable Railway Company of Omaha, to construct, maintain and operate such Cable street railroad over and across, in and along said streets, for the term of thirty years as aforesaid.

SECTION 5. The rights, privileges, and franchises herein and hereby granted, are subject to the following limitation and conditions to-wit:

First. The said rights and franchise not to be deemed exclusive, and to cease and terminate at the expiration of thirty years from the date of said election.

Second. The said Company shall at all times be subject to all reasonable regulations in the construction, use and operation of all lines of road within the City of Omaha, under its management or control, and of the cars running upon such lines, or any thereof, as shall be authorized by law or imposed by ordinance.

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Third. The track and cable tubes of said Company shall be so constructed and maintained as to prevent the least possible obstruction to the ordinary and public use of said streets and avenues, and upon commencing the construction of any line of road, the same shall be constructed continuously and not in separate parts and sections, except in special cases when the mayor and council may by ordinance or resolution otherwise order and permit.

Fourth. The taking up or removal of pavements, and all excavations for the purpose of laying ties, rails or cable tubes, and the location and the manner of placing the same in or upon any of said street- or avenues, shall be in accordance with such rules and reasonable regulations as may be prescribed by ordinance, and all pave-

ments, curbing or guttering removed, disturbed or injured in laying down, constructing, re-constructing or repairing the track, cable tubes or rails of said company, its successors or assigns, shall be fully and perfectly restored and replaced to the entire satisfaction of the Board of Public Works.

Fifth. The city reserves the right to establish, re-establish and change the grade of any of said streets or avenues, and said company shall, at its own expense, cause the grade of its tracks and cable line to conform to the grade of said streets and avenues.

Sixth. Not more than one track or line for the passage of cars in the same direction, shall be authorized or permitted upon any street or avenue unless for special reasons the mayor and council shall otherwise order.

Seventh. The said company, its successors and assigns, after constructing one track upon any street, avenue, or part thereof, shall within one year after being required so to do, in all cases where the mayor and council shall by ordinance declare it necessary so to do, by reason of the demands of public travel, construct an additional track, and remove as may be required all side tracks or turnouts, so as to allow of two lines for the passage of cars in opposite directions.

Eighth. No rights or privileges herein or hereunder granted shall authorize or empower said company to construct its tracks or cable line along that portion of any street or avenue, upon which the tracks or line of any other company are constructed or laid, or which may constitute a continuation of the tracks or line of
187 any other company then in process of actual construction, and the city hereby reserves the right, whenever the Mayor and Council by Ordinance shall deem it unwise to allow the construction of more than two tracks upon any street or avenue, and shall declare the public travel and convenience so required, to grant the right and privilege to any other company or corporation to run its cars over, along or across such portion of the track or line of said company as may be so declared proper and necessary, and as it may be practicable so to do, upon such terms and conditions and under such regulations as the mayor and council may by ordinance determine to be just and reasonable.

Ninth. The rights and franchise herein granted is upon the further condition that said company, within six months from the passage of this ordinance, will commence the construction of a cable line in the City of Omaha, and within eighteen months from the passage of this ordinance will construct and complete in the City of Omaha, at least one mile of cable line, and at the end of one year thereafter shall have at least two miles of cable line completed, and at the end of the next succeeding year thereafter, will have at least three miles of cable line completed and in operation, delays necessarily caused by injunction or other legal proceedings, or by the failure of the city to grade streets to establish grade not to be computed.

Tenth. The rights and franchise herein granted, is upon the further condition and agreement that any such rights and fran-

chise shall not cover or include streets or parts of streets in the City of Omaha, not actually occupied and in use by said Company at the expiration of six (6) years from the passage of this ordinance.

Eleventh. No assignment or transfer of any of the rights or privileges granted by this ordinance shall vest in the assignee or transferee of said company any rights or privileges thereunder, unless the same be made with the approval and consent of the mayor and council.

Twelfth. Said Company to obtain the privileges by this ordinance granted, shall within 6 months from the approval thereof, file with the City Clerk, a written acceptance of the terms and conditions of this ordinance, which acceptance shall be held and taken to bind said company to comply with all the condiitons and requirements of this ordinance.

Thirteenth. And it is further provided that if any party accepting the right and privilege by this ordinance granted shall violate or fail to comply with any of the requirements or provisions thereof, then, and in such case, such party shall forfeit all the rights, and privileges herein granted.

188 SECTION 6. That this ordinance shall take effect and be in force from and after its passage.

Passed June 1st, 1887.

[SEAL.]

J. B. SOUTHARD,
City Clerk.
WM. F. BECHEL,
President City Council.

Approved June 3rd, 1887.
W. J. BROATCH, *Mayor.*

EXHIBIT 8—C. W. P.

The Omaha Cable Tramway Company.

(*Ordinance No.* 1731.)

An ordinance authorizing and calling a special election to be held in the city of Omaha, for the purpose of submitting to the electors of said city the question of consent of said electors to the construction and operation of a street railroad in said city of Omaha by the Omaha Cable Tramway Company, designating the termini of said proposed street railroad and the streets through which it is proposed to construct and operate the same, and the form in which said question shall be taken.

Be it ordained by the City Council of the City of Omaha:

SECTION 1. That under the provisions of an act to provide for the incorporation of street railway companies within the cities of this state, approved February 15, 1887, a special election is hereby called and ordered to be held in the city of Omaha, Douglas County, Nebraska, on the 22nd day of May, A. D. 1888, for the purpose of submitting to the electors of said city the question of the consent

of said electors to the construction, building, operating, and maintaining cable tramways and street railways with suitable turnouts and connections and turn-tables, with cars propelled by endless cables electrically, compressed air, steam motor, or by such other motor as may now or hereafter prove to be practicable, over, under and across, in and along the streets of the city of Omaha by the Omaha cable tramway company, and the mayor of the said city is hereby requested and directed to give at least ten days' notice thereof in The Omaha Republican, a newspaper published in said city,
189 which notice shall state the termini of said proposed street railroad, and the streets through which it is proposed to construct and operate the same, the form in which such a question shall be taken and the time when such election shall be held.

SEC. 2. The streets of the City of Omaha, upon, through, over under and across, in and along which said cable tramways and street railways, with suitable turnouts and connections and turntables, may be constructed and operated and the termini of said proposed street railroad shall be as follows:

Commencing at the north end of each, Sixth Street, Seventh Street, Seventh Avenue, Eighth Street, Ninth Street, Tenth Street, Eleventh Street, Twelfth Street, Thirteenth Street, Fourteenth Street, Fourteenth Avenue, Fifteenth Street, Fifteenth Avenue, Sixteenth Street, Sherman Avenue, Seventeenth Street, Seventeenth Avenue, Eighteenth Street, Nineteenth Street, Twentieth Street, Lafayette Street, Twenty-first Street, Eagle Street, Twenty-second street, Clinton Street, Twenty-third Street, Twenty-fourth Street, Saunders Street, Bellevue Street, Twenty-fourth Avenue, Twenty-fifth Street, Wall Street, McCandliss Street, Wilcox Street, Twenty-fifth Avenue, Nassau Street, Twenty-Sixth Street, Worth Street, McCulley Street, Pearl treet, Twenty-sixth Avenue, Dye Street, Elliott Street, Twenty-Seventh Street, Myers Street, Taylor Street, Twenty-seventh avenue, Twenty-eighth Street, Perry Street, Twenty-eighth Avenue, Richard Street, McEntee Street, Twenty-ninth Street, Tilden Street, Twenty-ninth Avenue, Thirtieth Street, Butler Street, Thirtieth Avenue, Thirty-first street, Thirty-first Avenue, Thirty-second street, Thirty-second Avenue, Thirty-third street, Smith street, Thirty-fourth street, Thirty-fourth Avenue, Reed Street, Thirty-fifth Street, Millard Street, Thirty fifth Avenue, Devan Street, Thirty-sixth street, Della Avenue, Kennedy Street, Rockenfield Avenue, Thirty-seventh Street, Thirty-eighth Street, Seldon Street, Summit Street, Herron Street, Pleasant Street, Howe Avenue, Glen Street, Globe treet, West Street, Covert Street, Spring Street, Lowe Avenue, West Street, Pruyn Avenue Parrotte, Avenue, Thornburg street, Vandercook Street, Alice Street, Carthage Avenue, Dewey Street, Ballou Avenue, Groff Avenue, Forty-sixth Street, Emory Street, Smith Street, Institute Boulevard, Ambler Avenue, Florence Avenue, Forty-seventh Avenue, Allen Street, Dale Street, and running thence south in and along over and across said streets and avenues to the southern terminus of each as they now are or may hereafter be established. Also commencing at the east end of each, Commercial Street, Paxton Street, Genetta Street, Ames Avenue, Taylor Street, Ridge Street, Boyd Street, Douglas Avenue, Penn Street, Sahler Street, Valentine Street,

Sprague Street, Ruggles Street, South Street, Laird Street,
190 Spaulding Street, Manderson Street, Gregg Street, Pratt Street Lalk Street, Saratoga Street, Pinkney Street, Emmett Street, Lothrop Street, Bristol Street, Boulevard Avenue, Saunders Avenue, Spencer Avenue, Cameron Street, Writ Street, Newton Street, Binney Street, Cassius Street, Locust Street, Maple Street, Corby Street, Miami Street, Ohio Street, Lake Street, Spruce Street, Erskine Street, Grant Street, Burdette Street, Patrick Avenue, Yates Street, Blondo Street, Grace Street, Parker Street, Johnson Street, Pawnee Street, Decatur Street, Barker Street, Sheridan Avenue, Clark Street, Savage Street, Garlichs Street, Franklin Street, Seward Street, Mayne Street, Elk Street, Walnut Avenue, Orchard Street, Charles Street, Hamilton Street, Paul Street, Nelson Street, Caldwell Street, Indiana Street, Nicholas Street, George Street, Beane Street, Izard Street, Mercer Avenue, Cuming Street, Burt Street, Webster Street, California Street, Cass Street, Ernst Street, Chicago Street, Davenport Street, Capitol Avenue, Dodge Street, Douglas Street, Farnam Street, Ives Street, Harney Street, Half Howard Street, Rock Street, Howard Street, Emily Street, Division Street, Jackson Street, St. Mary's Avenue, Cable Street, John Street, Jones Street, Leavenworth Street, Marcy Street, Mason Street, Rees Street, Mount Pleasant Street, Pacific Street, Pierce Street, Briggs Street, Poppleton Avenue, Williams Street, Worthington Street, Woolworth Avenue, Pine Street, Hickory Street, Walnut Street, Center Street, Cedar Street, Shirley Street, Park Street, Oak Street, Frances Street, Fort Street, Dorcas Street, Ed Creighton Avenue, Martha Street, North Street, Marinda Street, Dupont Street, Castellar Street, Linn Street, Rice Street, Ione Street, Arbor Street, Pauline Street, Hazel Street, Megeath Street, Gold Street, Bancroft Street, South Street, Locust Street, Wright Street, Alice Street, Clara Street, Elm Street, Victor Street, Vinton Street, Oak Street, Nelson Avenue, Florence Street, Spring Street, Murray Street, Cochrane Street, Morton Street, Calhoun Avenue, Green Street, Chandler Street, Martha Street, Valley Street, Richardson Street, also Southwestern Avenue and its connections, and running thence west in and along, over under and across said streets and avenues to the western terminus of each as they are now or may hereafter be established.

SEC. 3. The form in which said question shall be taken shall be as follows:

"Shall consent, right of way, and authority be given to the Omaha Cable Tramway Company to construct, build, operate, use and maintain cable tramways and street railways with suitable turnouts and connections and turn-tables, with cars propelled by endless
191 cables, electricity, compressed air, steam motor or by such other motor as may now or hereafter prove to be practicable, over, under and across, in and along the several streets in the city of Omaha, following, to-wit:

* * * Also, commencing at the east end of each, * * * Dodge Street, * * * and running thence west in and along over, under and across said streets and avenues to the western terminus of each as they now are or may hereafter be established? Yes.

"Shall consent, right of way, and authority be given to the Omaha Cable Tramway Company to construct, build, operate, use, and maintain cable tramways and street railways with suitable turnouts and connections and turntables, with cars propelled by endless cables, electricity, compressed air, steam motor or by such other motor as may now or hereafter prove to be practicable, over, under and across, in and along the several streets in the City of Omaha, following, to-wit:

* * *, Also, commencing at the east end of each, * * * Dodge Street, * * * and running thence west in and along, over under and across said streets and avenues to the western terminus of each as they now are or may hereafter be established?

No.

SEC. 4. Said election shall be held at the time designated in said notice, and shall be held in the same manner and at the same place as the general city elections. The judges and clerks of election shall be appointed in the same manner as for the city elections. All votes "Yes" cast at said election shall be counted as in favor of granting to said Omaha cable tramway company the right to construct and operate said street railroad in manner and form as in said question and proposition described; all votes "No", cast at said election shall be counted as opposed to granting to said Omaha cable tramway company the right to construct and operate said street railroad in manner and form as in said question and proposition described. The returns of said election shall be canvassed by the city council of said city of Omaha at its next meeting after said election and the result declared.

SEC. 5. If a majority of the electors of said city of Omaha voting at said special election shall vote in favor of giving to said the Omaha cable tramway company, such consent, right of way and authority to construct, build, operate and maintain cable tramways and street railways with suitable turnouts and connections and turntables, with cars propelled by endless cables, electricity, compressed air, steam motor, or by such other motor as may now or hereafter prove to be practicable, over, under, and across, in and along
192 the streets of said city herein named, then said right of way and authority shall vest in said, the Omaha cable tramway company. Provided, that the franchise hereby granted shall not be deemed to be exclusive, and that said company shall at all times be subject to such reasonable regulations in the construction, building, operating and maintaining said cable tramways and street railways, together with the turnouts, connections, turn-tables and other property and appliances thereunto belonging, as shall from time to time be prescribed by the ordinances of said city, or by the statutes of the state of Nebraska. Provided further, that said railway track, cable tube, turnouts, connections, turn-tables and appliances shall be so constructed, operated and maintained as to present the least practicable obstruction to the ordinary and public use of said streets, and that they shall, when required, conform to the established grade of said streets as they now are or may hereafter be established, or the established grade thereof may be changed, at such time as *in* said streets shall be brought to grade.

Provided further, that a steam motor shall not be used or operated only under the direction and regulation of the mayor and council; that on all streets not occupied within twenty years the right to occupy the same shall cease, and the franchise shall terminate on all the streets in forty years. The franchise on Sherman Avenue shall be inoperative without the petition of the property holders representing a majority of the feet front thereon.

SEC. 6. This ordinance shall take effect and be in force from and after its passage.

Approved May 10, 1888.

PLAINTIFF'S EXHIBIT No. 9. (C. W. P.)

(Copy.)

City of Omaha.

Council Chamber, Omaha, Neb.

Resolved, By the City Council of the City of Omaha, the Mayor concurring:

That the city engineer be, and he is hereby, directed to prepare preliminary plans for a viaduct on Dodge street from a point at or near 46th Street, to a point west of 44th Street, and that he submit the same to this Council at the earliest practical moment, with recommendations and estimate of cost.

Introduced by councilmen M. F. Funkhouser.

193 Passed Jan. 26, 1909.

L. B. JOHNSON,
President of the Council.

Attest:
DAN B. BUTLER.
City Clerk.

Approved Feb. 1st, 1909.
JAMES C. DAHLMAN, *Mayor.*

Endorsed on the back: No. 344. Concurrent resolution by Mr. Funkhouser. Engr. prepare plans for viaduct on Dodge St. bet. 44th and 46th Sts. Adopted. Received 1/26/09. —— ——, City Clerk. Presented to Council Jan. 26, 1909. Adopted. Dan. B. Butler, City Clerk.

EXHIBIT 10—C. W. P.

MARCH 9TH, 1909.

To the Honorable The Mayor and City Council, Omaha, Nebraska.

GENTLEMEN: In compliance with Concurrent Resolution No. 344 approved February 1st, 1909, I herewith submit for your approval, detailed plans of viaduct to be constructed over the Missouri Railway tracks on Dodge Street from 46th Street East 740 feet.

The width of roadway of said viaduct is to be thirty-five feet with walks six feet in width on each side thereof.

The design contemplates placing the center of columns supporting the South side of said viaduct ten feet North of the property line, leaving twenty feet and six inches between the North columns and the North property line. This space will admit of a four foot walk adjoining the property line and a sixteen and one-half foot roadway as an approach from below the viaduct on the West end. This approach which is 200 feet in length will have a grade of eight per cent.

The maximum grade over the roadway on both ends of the viaduct is six and one-half per cent with practically a level section over the railway tracks furnishing a clearance of twenty-four feet. In order to construct the viaduct as designed, it will be necessary to raise the grade of 46th Street at its intersection with Dodge Street. This will benefit the grade to the North and to the West of said intersection and will leave a very light grade for the approach from the south. The improvements West of 46th Street being
194 above the proposed elevation of said intersection, will in no way be damaged.

Steps, however, will have to be taken if these plans are approved, to appraise damages incidental to the construction of said viaduct.

The estimated cost of said viaduct, including approaches, is approximately $56,000.

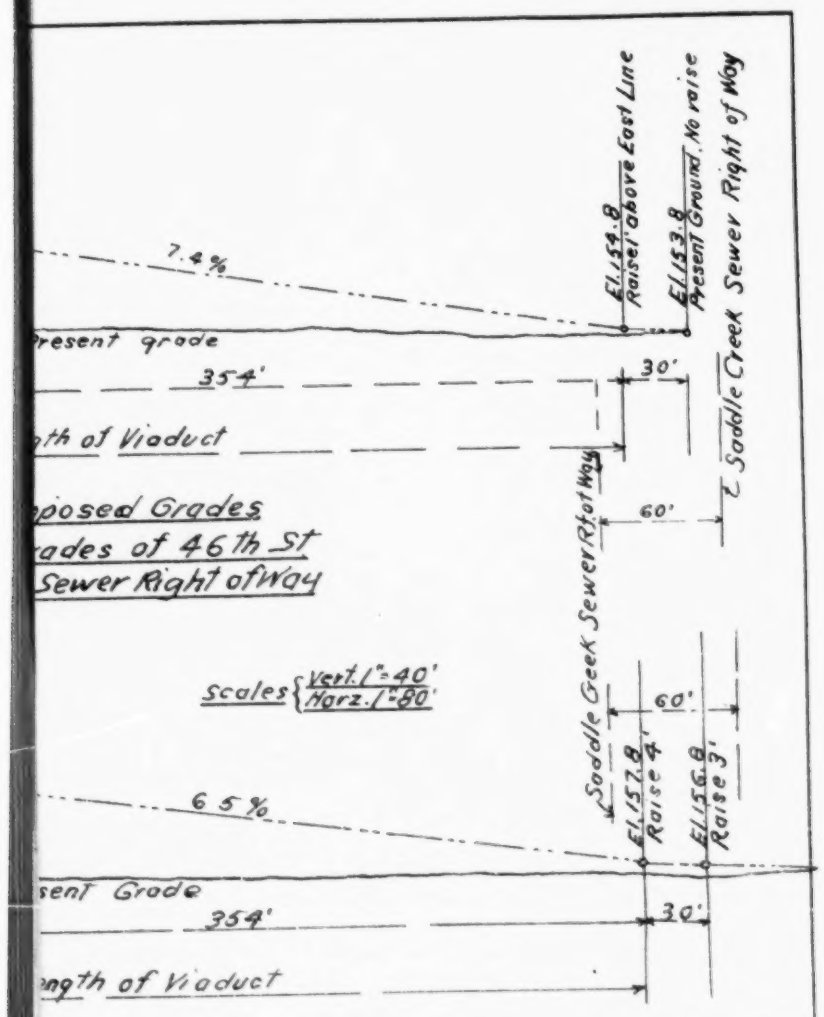
Very respectfully,

____ ____,
City Engineer.

(Here follows Complainants' Exhibit No. 11. C. W. P. Diagarm, marked page 195.)

Sketch showing Pro
to meet Present Gr
and Saddle Creek

Sketch showing Proposed
of Saddle Creek Sewer Right
to get 6.5% Grade in Eas
similiar to that on West



Raise
t of Way
st Approach
Approach

The Missouri Pacific Railway Co.
Sketch showing proposed
Grades on Viaduct Crossing of
Dodge Street & Omaha Belt Ry.
near 45th Street Omaha Neb.
Office C.E. M. of W. St. Louis 9-10-1910

File No-C-2700

196 DISTRICT OF NEBRASKA, *ss:*

MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
CITY OF OMAHA, Respondent.

I, Charles W. Pearsall, Examiner in Chancery for the Circuit Court of the United States, within and for the District of Nebraska, hereby certify that the foregoing testimony in the above entitled cause was, pursuant to agreement by and between the parties hereto, taken before me at the times and places in the record thereof indicated; that before testifying each of the several witnesses was by me severally duly sworn to tell the truth, the whole truth and nothing but the truth; that said testimony was taken in short hand by myself, and by myself transcribed as hereinbefore set forth; that by agreement of parties the signature of each of said witnesses to their respective depositions, so extended, was waived.

I further certify that the copies attached hereto, of the respective exhibits, which were offered in evidence, are true and correct copies of the originals of said exhibits.

CHARLES W. PEARSALL,
Examiner in Chancery for the Circuit Court of the United States Within and for the Dist. of Neb.

Endorsed: Filed Oct. 18, 1910. Geo. H. Thummel, Clerk.

Thereupon afterwards, to-wit: On the 15th day of December 1910, Replication was filed in said case, which said Replication is in words and figures following, to-wit:

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

5—Z.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
CITY OF OMAHA, Respondent.

Replication.

The Replication of the Missouri Pacific Railway Company, Complainant, to the Answer of the City of Omaha, Respondent.

This repliant saving and reserving all manner of benefit and advantage which may be had or taken to the many insufficiencies of said answer, for replication thereto, says that it will aver, maintain and prove its said bill of complaint to be true, certain and sufficient in law to be answered to, and the answer of the defendant to
197 be untrue, uncertain and insufficient to be replied to; all of which matters and things this repliant is and will be ready

to aver, maintain and prove, as this honorable Court shall direct. Wherefore it prays as in and by its said bill of complaint it has already prayed.

B. P. WAGGENER,
F. A. BROGAN,
Solicitors for Complainants.

Endorsed: Filed Dec. 15, 1910. Geo. H. Thummel, Clerk.

Thereupon afterwards, to-wit: On the 18th day of January, 1911, Memorandum Opinion was filed in said case, which said Memorandum Opinion is in words and figures following, to-wit:

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

Case No. —. Doc. —.

MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
CITY OF OMAHA, NEBRASKA, Respondent.

Memorandum Opinion.

THOMAS C. MUNGER, *D. J.:*

The complainant seeks to enjoin the enforcement of a city ordinance of the City of Omaha, which requires the complainant to construct a viaduct along Dodge street over its railway tracks which cross the street at that point.

1. It is contended that the railway company is not required to construct such a viaduct as the ordinance and the plans and specifications designate, because the viaduct is designed to support the tracks and to carry the heavy electric cars of a street railway company now operating along this street, and that this will require the expenditure of nearly $80,000, whereas a viaduct sufficient to carry all ordinary travel by pedestrians by ordinary vehicles, and even by heavy motor cars and steam road rollers can be built at a cost of about $30,000.

That the ordinance and the plans of the city contemplate a viaduct of sufficient strength to carry the street cars, is admitted, but it appears that ninety per cent of the people who now cross the railway at this point are carried by the street railway. In their regular runs, these cars now cross this railway track two hundred eighty-eight times a day and they frequently are loaded to their capacity of about eighty passengers. The railway company insists that to re-
198 quire it to erect a viaduct sufficiently strong to carry these street cars, deprives it of its property for the benefit of the street railway company in violation of the 14th amendment to the Constitution of the United States. Sec. 128 of Chap. 12*a* of the Compiled Statutes of Nebraska, (1909), being a portion of the laws relating to the governme: t of the city of Omaha, and commonly known as the Omaha Charter, provides as follows:

"To require any railway company or companies owning or operating any railway track or tracks upon or across any public street or streets of the city, to erect, construct, reconstruct, complete and keep in repair any viaduct or viaducts upon or along such street or streets and over or under such track or tracks, including the approaches of such viaduct or viaducts as may be deemed and declared by the mayor and council necessary for the safety and protection of the public. * * * The width, heighth and strength of any such viaducts and approaches thereto, the material therefor, and the manner of construction thereof, shall be as required by the city engineer, and approved by the mayor and council. When two or more railroad companies own or operate separate lines of track to be crossed by any such viaduct, the proportion thereof, and the approaches thereto, to be constructed by each, or the cost to be borne by each, shall be determined by the mayor and council. It shall be the duty of any railroad company or companies upon being required as herein provided to erect, construct, reconstruct or repair any viaduct, to proceed within the time and in the manner required by the mayor and council to erect, construct, reconstruct or repair the same, and it shall be a misdemeanor for any railroad company or companies to fail, neglect or refuse to perform such duty, and upon conviction of any such company or companies shall be fined one hundred dollars, and each day such company or companies shall fail, neglect or refuse to perform such duty shall be deemed and held to be a separate and distinct offense, and in addition to the penalty herein provided any such company or companies shall be compelled by mandamus or other appropriate proceedings to erect, construct, reconstruct or repair any viaduct as may be required by ordinance as herein provided."

The validity of a statute in almost identical words was upheld, as within the police power of the state, by the Supreme Court of this state and by the Supreme Court of the United States. Chicago, Burlington & Quincy R. R. Co. v. Nebraska, 47 Nebr. 549; Chicago, Burlington & Quincy R. R. Co. v. Nebraska, 170 U. S. 57-74. See Northern Pacific Ry. Co. v. Minnesota, 208 U. S. 583.

199 In certain cases cited by complainant it was held that the statutes there in question did not require railway companies to maintain viaducts over their tracks of sufficient strength to support street cars. In the case of Carolina R. R. v. Wilmington St. Ry. Co., 120 N. C. 520, 26 S. E. 913, the statute provided that a railway company might construct its road across a street or highway, but the company should restore the street thus crossed to its former state, or to such state as not unnecessarily to have impaired its usefulness. Sub-Secs. 5, 6, of Sec. 1957, Code of N. C. (1883).

In the case of People v. Adams, 88 Hun. 122, — N. Y. Supp. —, the statute required the railway company to construct its track "with depressed tracks at every crossing of any street and provide a suitable overcrossing thereat, under the direction of the city surveyor." Sec. 5, Chap. 326, Laws of N. Y., 1880.

In the case of Briden v. N. Y., N. H. & H. R. Co., 27 R. I. 569, 65 Atl. 315, the statute, as set out in the report of the case, read: "And if the said railroad shall, in the course thereof, cross any canal,

turnpike or highway, the said railroad shall be so constructed as not to impede or obstruct the safe or convenient use of such canal, turnpike or other highway."

Another provision of the statute was:

"And if the said corporation shall raise or lower any such turnpike or highway pursuant hereto, and shall not so raise or lower the same as to be satisfactory to the proprietors of such turnpike, or to the town council of the town in which said highway may be situated, as the case may be, said proprietors or town council may require in writing of said corporation such alteration or amendment as they shall deem necessary."

but this clause was held not to apply to the case.

The construction of these statutes afford- little assistance in determining the present case, and other cases cited by complainant (Pennsylvania R. R. v. Greensburg St. Ry. Co., 176 Pa. St. 559, 35 Atl. 122; West Jersey v. Atlantic, 65 N. J. Eq. 613, 56 Atl. 890; Newark & H. R. Co. v. N. J. Traction Co., — N. J. Eq. —, 33 Atl. 475; Conshohocker v. Pennsylvania, 15 Pa. *60* Ct. Rep., 445) are of less relevancy.

Where the statute is plain there is no room for construction and the statute to be applied in this case grants power to the city of Omaha to compel the erection of such a viaduct "as may be deemed and declared by the mayor and council necessary for the
200 safety and protection of the public", and "the width, height and strength of any such viaduct and approaches thereto, and the material therefor and the manner of construction thereof, shall be as required by the city engineer and approved by the mayor and council." This is a plain grant of power to the city to require a viaduct strong enough to support the cars of a street railway company lawfully operating along the street. Such a grant of power does not deprive the railway company of its property within the meaning of the 14th amendment to the Constitution. The police power extends to the protection and convenience of the ninety per cent of people who cross the railway in street cars as well as the ten per cent who cross as pedestrians or in private conveyances. That the street railway company reaps an incidental advantage is no objection to the statute, as its main purpose is the safety of the people who now must cross the tracks of the complainant, a recognized place of danger. While the state might have compelled the street railway company to contribute to the expense of the construction of this viaduct (See Detroit, etc. Ry. vs. Osborn, 189 U. S. 383) yet it is recognized that where several parties are responsible for the existence of a grade crossing, either one may be required to abate the continuance of such a nuisance, and to pay the entire expense of erecting the overhead crossing. New York etc. R. R. Co. v. Bristol, 151 U. S. 556-557; Chicago, etc. R. R. Co. v. Nebraska, 170 U. S. 57-75.

2. It is claimed that the viaduct p[illegible] of unreasonable length, for the purpose of extending ove[illegible] city boulevard, and that this also violates the company's property rights under the

14th amendment. The testimony is satisfying, that while the viaduct will extend over the proposed boulevard, this was not the purpose of the city in the adoption of the plans. The city engineer testifies that the length of the viaduct is the result of the grades adopted for the approaches, and that these grades are reasonable and usual. I do not find that the council has abused its power in this respect.

3. The complainant asserts that the ordinance is void because the street along which the viaduct is to be erected, is not closed to further travel. It is shown that there are a few places of business so situated that access to them should be reserved by means of a grade crossing underneath or along the proposed viaduct. The ordinance is not void because the street is left open, as the statute does not require it to be closed when a viaduct is built over the railway tracks.

4. The ordinance directed the railway company to commence construction of the viaduct within twenty-seven days after the
201 ordinance was approved. It is said that compliance with the ordinance was impossible because of the short time thus given the railway company, and of the insufficient time allowed in which to complete the viaduct.

The evidence convinces that the company could have commenced the construction within the time limited. It may be that it could not have proceeded far, but it would have been a compliance with the time of the ordinance to have begun the work in good faith, and a court of equity could then have relieved against undue exactions thereafter. It is not established that the viaduct could not have been constructed within the time limited by the ordinance.

It is said, finally, that no plans that could have been followed, were even prepared, and no proper specifications were ever adopted. The ordinance requiring the construction of this viaduct also contains the approval and endorsement of plans and specifications as prepared by the city engineer. The evidence shows that such plans and specifications theretofore had been prepared. While they were lacking in some details, yet they were sufficient to enable the railway company to proceed in substantial conformity to the ordinance. If more detailed specifications were needed, its own engineers could readily supply them. The viaduct might be lacking in some things that the city had power to require, but the plans and specifications, so far as they went, have not been shown to be unintelligible or incapable of being followed.

A decree may be prepared in conformity herewith according to the usual practice.

Endorsed: Filed Jan. 18, 1911. Geo. H. Thummel, Clerk.

Thereupon afterwards, to-wit: At the September 1910 Term of said Court and on the 8th day of February, 1911, Decree was signed and filed in said case and duly entered of record in Journal No. 8 of said Court, to-wit:

Z—5.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Respondent.

Decree.

This day this cause came on to be heard upon the pleadings and the evidence, was argued by counsel and considered by the Court, whereupon, it is by the Court considered and decreed as follows:

202 The Court finds for the respondent upon all the issues, and that the complainant is not entitled to the relief prayed for in its bill.

It is Therefore by the Court Considered and Decreed That the bill of the complainant be and the same hereby is dismissed for want of equity, and that the respondent herein recover its costs taxed at $—, and that execution issue for the same.

To each and all of the foregoing findings, orders and decree the complainant at the time duly excepted.

By the Court:

THOS. C. MUNGER, *Judge.*

Thereupon afterwards, to-wit: On the 8th day of February, 1911, Petition for Appeal was filed in said case, which said Petition is in words and figures following, to-wit:

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

Z—5.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Respondent.

Petition for Appeal.

The above named complainant, The Missouri Pacific Railway Company, conceiving itself to be aggrieved by the final decree, order and judgment entered in the above entitled cause, at the September 1910 term of the said court, on the — day of February, 1911, hereby appeals from the said final decree, dismissing the complainant's bill of complaint, and prays that this, its appeal to the United States Circuit Court of Appeals for the Eighth Judicial Circuit, may be allowed; and that a transcript of the record, proceedings and papers from which the said final decree, order and judgment *was* made, duly authenticated, may be sent to the United States Circuit Court of Appeals for the Eighth Judicial Circuit.

And at the time of filing this petition for appeal, the said The

Missouri Pacific Railway Company, complainant, files herein its assignment of errors, setting up separately and particularly each error assigned and intended to be urged in the United States Circuit Court of Appeals for the Eighth Judicial Circuit.

203 And your petitioner will ever pray.

THE MISSOURI PACIFIC RAILWAY COMPANY,
By B. P. WAGGENER,
F. A. BROGAN,
Its Attorneys.

Endorsed: Filed Feb. 8, 1911. Geo. H. Thummel, Clerk.

Thereupon afterwards, to-wit: On the 8th day of February, 1911, Assignments of Error *was* filed in said case, which said Assignments of Error *is* in words and figures following, to-wit:

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

Z—5.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Respondent.

Assignments of Error.

Comes now the complainant and files the following assignments of error, upon which it will rely upon the prosecution of the appeal from the decree made by this Honorable Court, on the — day of February, 1911, in the above entitled cause, and assigns errors in the decision, judgment and decree of the Court in the said cause, as follows:

1. The Court erred in holding and deciding that the respondent had power to compel the complainant to construct a viaduct of sufficient width and strength to provide for the traffic of the street railway company over the same.

2. The Court erred in holding and deciding that the provisions of the ordinance of the city, and the plans and specifications adopted by the respondent city, requiring the complainant to construct a viaduct sufficient to provide for the traffic over the same of the street railway company, was not a taking of the property of the complainant without compensation, and was not a violation of the rights guaranteed to the complainant by the fourteenth amendment of the constitution of the United States.

3. The Court erred in holding that the provisions of the ordinance of the respondent city, requiring the complainant to construct a viaduct for the traffic of the street railway company, was not the taking of the property of the complainant without due process

of law, and was not a violation of the rights secured to the complainant by the constitution of the United States.

204 4. The Court erred in holding and deciding that the ordinance of the city and the plans and specifications adopted by it, requiring the complainant to extend the proposed viaduct to an unnecessary length, for the purpose of carrying the street traffic of Dodge Street, over a proposed boulevard of the city, parallel with the railway and some distance therefrom, was not an abuse of the power vested in the city by the statute, and was not a violation of the rights secured to the complainant by the constitution of the United States.

5. The Court erred in holding that the city has power to compel the construction of a viaduct over a grade crossing, and at the same time keep open the grade crossing.

6. The Court erred in holding and deciding and finding that the ordinance of the city was not invalid for the reason that it required the complainant to commence the construction of the viaduct within twenty-seven days after the passage of the ordinance, whereas, the evidence on both sides is conclusive to the effect that the actual construction could not commence within a period of three months after the passage of the ordinance, and until after detailed plans and specifications had been prepared and submitted to the council for approval.

7. The Court erred in holding and deciding that the ordinance was not invalid for uncertainty, in that no plans and specifications had been prepared and approved at the time of the passage of the ordinance.

8. The Court erred in holding and deciding that the ordinance was not void for uncertainty, in that the alleged plans and specifications were so indefinite and unintelligible that they could not have been followed.

9. The Court erred in dismissing the complainant's bill of complaint, and erred in not granting the prayer of the said bill.

10. The Court erred in holding that the bill of complaint was without equity.

In order that the foregoing assignments may be and appear of record, the complainant presents the same to the court, and requests that the same may be a part of the record in accordance with the law and practice of this court, and the complainant prays the reversal of the decree of dismissal made and entered by the said Court.

B. P. WAGGENER,
F. A. BROGAN,
Solicitors for Complainant.

Endorsed: Filed Feb. 8, 1911. Geo. H. Thummel, Clerk.

205 Thereupon afterwards, to-wit: At the September 1910 Term of said Court and on the 8th day of February, 1911, Order Allowing Appeal was signed and filed in said case and duly entered of record in Journal No. 8 of said Court, to-wit:

5—Z.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Respondent.

Order Allowing Appeal.

Now on this 8th day of February, 1911, it is

Ordered that an appeal of this cause to the United States Circuit Court of Appeals for the Eighth Judicial Circuit, be and the same hereby is allowed, in favor of the complainant, The Missouri Pacific Railway Company, from the final decree rendered in this cause, and that a duly certified transcript of the record, evidence, and all proceedings therein be forthwith authenticated, and transmitted to the Clerk of said Circuit Court of Appeals.

It is Further Ordered that the complainant be and hereby is required to give a good and sufficient appeal bond, in the sum of $300.00, conditioned according to law, the same to operate as a supersedeas bond, and bond for costs and damages on said appeal.

THOS. C. MUNGER, *Judge.*

Thereupon afterwards, to-wit: On the 9th day of February, 1911, Bond was filed in said case, which said Bond is in words and figures following, to-wit:

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

5—Z.

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Respondent.

Bond.

Know All Men By These Presents, That The Missouri Pacific Railway Company, as principal, and the American Surety Company of New York, as surety, are held and firmly bound unto the City of Omaha, Nebraska, in the full and just sum of Three Hundred Dollars, to be paid to the said City of Omaha and its successors or assigns; to which payment, well and truly to be made, we bind ourselves, our successors and assigns, jointly and severally by these presents.

206 Sealed with our seals, and dated, this 8th day of February, A. D., 1911.

Whereas, lately, in a suit pending in the said court, between The Missouri Pacific Railway Company, as complainant, and the City of Omaha, Nebraska, as respondent, a decree was rendered dismissing

the bill of the said complainant, upon which decree an appeal has been prosecuted by the said complainant to the United States Circuit Court of Appeals for the Eighth Circuit, to reverse the said final judgment and decree entered in the above entitled cause in the Circuit Court of the United States for the District of Nebraska:

Now Therefore, the condition of this obligation is that if the above named The Missouri Pacific Railway Company, shall prosecute its said appeal to effect, and answer all costs or damages that may be adjudged or awarded against it, if it fails to make good its plea, then this obligation to be void, otherwise to remain in full force and effect.

THE MISSOURI PACIFIC RAILWAY COMPANY,
By F. A. BROGAN, *Its Attorney.*
AMERICAN SURETY COMPANY OF NEW YORK,
[SEAL.] By PHILIP POTTER,
Resident Vice-President.

Attest:
FREDERICK J. BURNETT,
Resident Assistant Secretary.

Taken and approved by me this — day of February, 1911.
THOS. C. MUNGER, *Judge.*

Endorsed: Filed Feb. 9, 1911. Geo. H. Thummel, Clerk.

Citations—U. S. C. C. Appeals.

The United States of America to the City of Omaha, Greeting:

(Appeal.)

You are hereby cited and admonished to be and appear in the United States Circuit Court of Appeals for the Eighth Circuit, at the City of St. Louis, Missouri, sixty days from and after the day this Citation bears date, pursuant to an appeal, filed in the Clerk's office of the Circuit Court of the United States for the district of Nebraska, wherein The Missouri Pacific Railway Company, is appellant, and you are appellee, to show cause, if any there be, why the judgment rendered against the said appellant, as in
207 said appeal mentioned, should not be corrected, and why speedy justice should not be done the parties in that behalf.

Witness, the Honorable Thomas C. Munger, Judge of the District Court of the United States for the District of Nebraska, this eighth day of February, in the year of our Lord one thousand-nine hundred and eleven.

THOS. C. MUNGER,
United States District Judge for the District of Nebraska.

Service of the within citation accepted this 14 day of February, 1911 by the City of Omaha.

JOHN A. RINE,
By I. J. DUNN,
Its Attorney.

No. 5. Doc. Z. Filed Feb. 17, A. D. 1911. Geo. H. Thummel, Clerk.

In the Circuit Court of the United States for the District of Nebraska, Omaha Division.

No. 5. Docket "Z".

THE MISSOURI PACIFIC RAILWAY COMPANY, Complainant,
vs.
THE CITY OF OMAHA, Respondent.

Præcipe for Transcript.

To the Clerk of said Court:

Please prepare Transcript for the United States Circuit Court of Appeals in the above entitled cause and include therein the following:

1. Order, giving Plaintiff leave to file Amended Bill.
2. Amended Bill of Complaint.
3. Answer of Defendant to Amended Bill of Complaint.
4. Transcript of Testimony.
5. Replication.
6. Memorandum Opinion.
7. Decree.
8. Petition for Appeal.
9. Assignments of Error.
10. Order Allowing Appeal.
11. Bond.
12. Citation.
13. Præcipe.

Dated this 8th day of February, 1911.

F. A. BROGAN,
Attorney for Defendant.

208 Endorsed: Filed Mar. 31, 1911. Geo. H. Thummel, Clerk.

Filed Mar. 31, 1911. Geo. H. Thummel, Clerk.

UNITED STATES OF AMERICA,
District of Nebraska, ss:

I, Geo. H. Thummel, Clerk of the Circuit Court of the United States for the District of Nebraska, do hereby certify that pursuant to the Order of Court and in compliance with the Præcipe, a copy

of which is found on page 297 hereof, the foregoing record has been made; and that the same is a true and faithful transcript of the pleadings and proceedings of record and on file in said Court as mentioned in said Præcipe, and as indicated in the foregoing index, in the case of Missouri Pacific Railway Company against The City of Omaha, No. 5 Docket "Z" and that a copy of the Citation duly certified has been lodged and remains in my said office as such Clerk.

Witness my hand and the seal of the said Circuit Court of Omaha in said District, this 31st day of March, 1911.

[Seal U. S. Circuit Court, Dist. of Nebraska, Omaha Division.]

GEO. H. THUMMEL, *Clerk.*

Filed Apr. 4, 1911. John D. Jordan, Clerk.

209 (*Appearance of Mr. B. P. Waggener as Counsel for Appellant.*)

On the sixth day of April, A. D. 1911, the appearance of Mr. B. P. Waggener, as counsel for the appellant, was filed in said cause, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit.

No. 3587.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA.

The Clerk will enter my appearance as Counsel for the Appellant.

B. P. WAGGENER.

(Endorsed:) U. S. Circuit Court of Appeals, Eighth Circuit. No. 3587. The Missouri Pacific Railway Company, Appellant, vs. The City of Omaha. Appearance. Filed April 6, 1911. John D. Jordan, Clerk. B. P. Waggener, Counsel for Appellant.

(*Appearance of Mr. F. A. Brogan, as Counsel for Appellant.*)

And on the sixth day of April, A. D. 1911, the appearance of Mr. F. A. Brogan, as counsel for the appellant, was filed in said cause, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit.

No. 3587.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA.

The Clerk will enter my appearance as Counsel for the Appellant.

F. A. BROGAN.

(Endorsed:) U. S. Circuit Court of Appeals, Eighth Circuit. No. 3587. The Missouri Pacific Railway Company, Ap-
210 pellant, vs. The City of Omaha. Appearance. Filed Apr. 6, 1911. John D. Jordan, Clerk. F. A. Brogan, Counsel for Appellant.

(*Appearance of Counsel for Appellee.*)

And on the fifth day of July, A. D. 1911, the appearance of counsel for the appellee, was filed in said cause, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit.

No. 3587.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA.

The Clerk will enter my appearance as Counsel for the Appellee.

JOHN A. RINE, *Omaha, Neb.*
W. C. LAMBERT, " "
CLINTON BROME, " "

(Endorsed:) U. S. Circuit Court of Appeals, Eighth Circuit. No. 3587. The Missouri Pacific Railway Company, Appellant, vs. The City of Omaha. Appearance. Filed Jul- 5, 1911. John D. Jordan, Clerk. John A. Rine, W. C. Lambert, Clinton Brome, Counsel for Appellee.

(*Order of Submission.*)

And on the thirteenth day of December, A. D. 1911, in the record of the proceedings of said Circuit Court of Appeals is an order of submission in said cause, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit, December Term, 1911.

Wednesday, December 13, 1911.

No. 3587.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA.

211 Appeal from the Circuit Court of the United States for the District of Nebraska.

This cause having been called for hearing in its regular order, argument was commenced by Mr. F. A. Brogan for Appellant and concluded by Mr. John A. Rine for appellee.

Thereupon, this cause was submitted to the Court on the transcript of record from said Circuit Court and the briefs of counsel filed herein.

(*Opinion.*)

And on the twentieth day of May, A. D. 1912, the opinion of said United States Circuit Court of Appeals for the Eighth Circuit was filed in said cause, in the words and figures following, to-wit:

212 United States Circuit Court of Appeals, Eighth Circuit, May Term, A. D. 1912.

No. 3587.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA, Appellee.

Appeal from the Circuit Court of the United States for the District of Nebraska.

Mr. Francis A. Brogan (Mr. Bailey P. Waggener and Mr. Martin L. Clardy were with him on the brief), for the appellant.

Mr. John A. Rine (Mr. W. C. Lambert and Mr. Clinton Brome were with him on the brief), for the appellee.

Before Sanborn, Hook and Adams, Circuit Judges.

HOOK, Circuit Judge, delivered the opinion of the court.

This is a suit by the Missouri Pacific Railway Company to enjoin the City of Omaha, Nebraska, from enforcing an ordinance requiring it to construct at its sole expense a viaduct on Dodge

Street over its intersecting railroad tracks. The trial court dismissed the bill upon final hearing and the company appealed.

It is not denied that power was conferred upon the city by state statute to require railway companies having tracks upon or across public streets to construct viaducts and approaches, and to prescribe the width, height and strength thereof, the material to be used and the manner of construction, but complaint is made that in the present instance the ordinance required a viaduct of sufficient width and strength to sustain the traffic of a street railroad on Dodge Street at an additional cost for that reason of about $50,000, and as the street railroad company was not required to contribute, the property of the complaining company was taken to that extent without compensation and without due process of law, contrary to the Constitution. Though the specified width and strength
213 of the viaduct may have been essential to its use for street car traffic, the object the city had in view was not the benefit or advantage of the street railroad company but on the contrary was the safety and convenience of the public traveling over the street by any and every lawful means. The advantage that might accrue to the street railroad company was incidental to the exercise of a power the existence of which in the particular case cannot be doubted. The operation of street cars is a proper street use, and none the less so that the cars are commonly given certain rights of precedence over other vehicles on the streets or that the business is usually conducted for profit by a corporation under a franchise. Not only is it a proper street use but in populous communities it may be one of public necessity. The nature of the use is not affected by the matter of precedence over other traffic, which is largely for mechanical reasons, nor by the taking of fares under a corporate franchise. With legislative authority the business might even be conducted by the municipality itself. It may be conceded that if the case before us were not one of the exercise of the police power of the State through the medium of a city, but were to be determined according to equitable principles we would think the street railroad company should be required to contribute to the cost of the viaduct, and perhaps the city itself as the representative of other interests. But whether the power of the State is competently exercised or its exercise violates the Constitution of the United States is not to be determined by a court solely by its own sense of right and wrong. Legislation under the police power is naturally along general lines and it is rare that immediate and exact justice is done to all who may be affected by it. The books are full of cases, which we are constrained to follow, of equal if not greater hardship in which special loss is uncompensated save by participation in the common public good. See citations in Railway v. Drainage Comm'rs, 200 U. S. 561. It must be admitted that the danger at crossings of steam railroads and public highways is largely due to the character of locomotive engines and railroad cars and the necessary methods of their operation, and it is not an unconstitutional exercise of the police power to impose upon the party chiefly responsible for the danger the duty and cost of removing it. New York, etc., Railroad v. Bristol, 151

U. S. 556; Grand Trunk Railway v. Indiana Railroad Commission, 221 U. S. 400. The extensive power conferred upon the city by the Nebraska statute was considered and upheld in Chicago, etc., Railroad v. Nebraska 47 Neb. 549, 170 U. S. 57.

Complaint is also made that in order to clear a proposed boulevard at right angles to Dodge Street the ordinance and plans require the east approach of the viaduct to be about two hundred feet longer than otherwise necessary, thereby unreasonably increasing the cost of the structure. The Nebraska statute expressly conferred upon the city the power to determine the dimensions of the viaduct and approaches, but it is objected that the power has
214 been abused. A court should regard such an objection with extreme caution, and all reasonable doubts should be resolved in favor of the valid exercise of the power. The case should be a clear one to justify judicial interference; debatable differences of opinion are not sufficient. It would be intolerable if the courts should lightly substitute their judgment for that of city officers as to details of municipal improvements such as the sufficiency of grades, the necessity for public highways, the dimensions and strength of bridges and viaducts, and the like. The city was lawfully authorized to impose upon the company the entire burden of a suitable structure without loss or cost to itself and to determine within reason what kind of a structure was needed. Clearly it could prescribe one that would not obstruct an existing highway or a highway in reasonable contemplation. According to a projected scheme of municipal improvement a boulevard was planned to run at right angles to the viaduct near the east end. The location of the beginning of the approach within its limits would be a serious obstruction. Therefore the plans of the viaduct prescribed by the city carried the approach over and beyond the proposed highway. The company contends that if certain feasible changes in the plans were made the approach would be so shortened as not to reach the boulevard at all; but it appears that this would also necessitate the raising of the street grades, and whether that should be done with the probable damage to abutting property was for the city to determine. We do not agree with counsel that the purpose of the longer approach was to raise the street car tracks on Dodge Street over the intersecting surface of the proposed boulevard. Entire good faith should be imputed to the city as well as a desire of the public good. Surface crossings of street car tracks and boulevards are so common that it cannot fairly be said that to attain such an unimportant object as to prevent a crossing in the present instance the city would arbitrarily plan an overhead structure which would be at once an expensive burden to the company and an obstruction and disfigurement of the proposed highway itself. If there is a practicable way of avoiding those results it should be sought in conferences between the parties rather than by an appeal to a court for the extraordinary writ of injunction.

It is also urged that the ordinance is void because the grade crossing of the railroad tracks under the viaduct was left open for travel thereby negativing that necessity for an overhead structure upon which the power of the city depended. This is but another way of

asserting that the requirement of a viaduct must be accompanied by a complete vacation or abandonment of the surface crossing—that the city is without power to require a railroad company to build a viaduct for less than all the street traffic. The contention is untenable. The necessity for the safety and protection of the public is the statutory warrant for the ordinance but its extent is for the judgment of the municipality. Conditions might exist in which a mere
215 foot bridge for pedestrians would be regarded as sufficient. It is probable that in the present case the grade crossing was left for the convenience of those owning property and doing business under the viaduct and to lessen the injury to abutting property which would follow its vacation. But whether so or not we cannot say as matter of law that an abuse of the power conferred by the statute has been shown.

Again, it is claimed the ordinance is void because the plans of the viaduct were too incomplete and indefinite to enable the company to proceed, and also because it was required under penalties of a misdemeanor to commence erection and construction within an impossibly short period. The plans are somewhat confused but we think that when taken as a whole they are not subject to the objection made. The plans subsequent to those first made were undoubtedly intended and should be taken as a modification. The very ordinance which is attacked so indicates. The time limited for the commencement of work is short, but the ordinance does not mean a beginning of the physical structure to the exclusion of the usual preparations in good faith which necessarily precede the breaking of ground.

The decree is affirmed.

Filed May 20, 1912.

SANBORN, Circuit Judge, dissenting:

It is undoubtedly true that the City of Omaha has derived from the police power of the State the power to compel the Missouri Pacific Railway Company to construct such viaducts over its tracks at street crossings as are necessary to protect the health and safety of those who use the ordinary methods of traffic by carts, teams and carriages upon its streets. But this power is not without limit. It is not so great as to enable the city practically to confiscate the property of a railroad company, when neither the safety, health nor morals of the public demand such action. It is limited by the constitutional prohibition of the taking of private property without just compensation.

The street railway company is a corporation operating for gain for the benefit of its stockholders, private citizens. It has no right to occupy or use this street, or any street in the City of Omaha without a license or grant from the city. Its use of the street, permitted by the city, is not an ordinary but an additional and extraordinary use. The street railway company cannot demand of the city that it shall expend $50,000.00, or any sum whatever, to carry its cars over the tracks of this Railway Company, or elsewhere upon the streets of the city. And as the city is not required to do this its attempt to

compel the Railway Company to expend, for the private benefit of the street car company and its stockholders, $50,000.00 more than is necessary to provide a safe, sufficient and convenient viaduct
216 for all the ordinary traffic upon the street by teams, carts and carriages, while it demands no expenditure by the street car company, is in my opinion unjustified by the necessity of the case, unreasonable, violative of the constitutional inhibition of the taking of private property without just compensation and confiscatory. Carolina Central R. R. Co. v. Wilmington Street Ry. Co., 26 S. E. 913, 914; Briden v. New York, N. H. & H. R. Co., 27 R. I. 569, 65 Atl. 315, 317; People v. Adams, 88 Hun. 122, 126; People v. Adams, 147 N. Y. 722; Conshohocken R. Co. v. Pennsylvania R. Co., 15 Pa. Co. Ct. 445; Detroit, Fort Wayne & Belle Isle Ry. Co. v. Osborn, 189 U. S. 383, 390; West Jersey & S. R. Co. v. Atlantic City & S. Traction Co., 56 Atl. (N. J.) 890.

The plan of the viaduct proposed by the city provides for the raise of the grade of 46th Street, which crosses Dodge Street, on which the viaduct is to be built, at right angles at the western approach to the bridge, three feet and makes the grade of the western approach 6.5 feet. A raise of the grade of the imaginary boulevard that the city claims may in some future time be built across Dodge Street on the site of the Saddle Creek sewer three feet, a grade of 6.5 feet on the eastern approach and a bridge floor two feet instead of seven feet in thickness, which the engineers testify is equally safe and efficient, would bring all of the eastern approach west of the Saddle Street sewer and would avoid the necessity of the expense of extending the eastern approach more than two hundred feet over the imaginary boulevard and beyond the sewer. The requirement of that expenditure is in my opinion unjustified by necessity, obviously unreasonable and confiscatory and the city ought to be enjoined from compelling it.

The order of the city attempts to impose upon the railway company a penalty of one hundred dollars for every day it delays in the construction of the viaduct. I think that the plans provided by the city were, at the time the order was made, so confused that it was not possible to determine with reasonable certainty their meaning and that it was impracticable to follow them. For these reasons I am unable to concur in the view of the majority that the decree below should be affirmed. It seems to me that it ought to be reversed and the city ought to be enjoined from enforcing its order for the construction of the viaduct according to its present scheme.

Filed May 20, 1912.

217 (*Decree.*)

And on the twentieth day of May, A. D. 1912, in the record of the proceedings of said Circuit Court of Appeals is a decree in said cause, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit, May Term, 1912.

Monday, May 20, 1912.

No. 3587.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA.

Appeal from the Circuit Court of the United States for the District of Nebraska.

This cause came on to be heard on the transcript of the record from the Circuit Court of the United States for the District of Nebraska, and was argued by counsel.

On consideration whereof, it is now here ordered, adjudged and decreed by this Court, that the decree of the said Circuit Court, in this cause, be, and the same is hereby, affirmed with costs; and that The City of Omaha have and recover against The Missouri Pacific Railway Company the sum of twenty dollars for its costs herein and have execution therefor.

May 20, 1912.

(*Petition for Appeal to Supreme Court U. S.*)

And on the ninth day of July, A. D. 1912, a petition for appeal to the Supreme Court of the United States was filed in said cause, in the words and figures following, to-wit:

In the United States Circuit Court of Appeals, Eighth Circuit.

No. 3587.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA, Appellee.

Petition for Appeal.

218 The above named appellant, The Missouri Pacific Railway Company, conceiving itself to be aggrieved by the final decree, order and judgment entered in the above entitled cause, at the May Term, A. D. 1912, of said court, on the 20th day of May, A. D. 1912, affirming a certain final decree, order and judgment entered at the September, 1910, Term of the Circuit Court of the United States for the District of Nebraska, Omaha Division, on or about the — day of February, A. *A.* 1911, in a certain cause entitled, The

Missouri Pacific Railway Company, Complainant, vs. The City of Omaha, Respondent, dismissing the bill of complaint in said cause, hereby prays an appeal from the said final decree, order and judgment of this Honorable Court affirming said final decree, order and judgment of said Circuit Court of the United States for the District of Nebraska, Omaha Division, dismissing said bill of complaint, and prays that this, its appeal to the Supreme Court of the United States, may be allowed; and that a transcript of the record, proceedings and papers from and upon which the said final decree, order and judgment was made and entered, duly authenticated, may be sent to the Supreme Court of the United States.

And at the time of filing this petition for appeal, the said The Missouri Pacific Railway Company, Appellant, files herewith its assignment of errors, setting up separately and particularly each error assigned and intended to be urged in the Supreme Court of the United States.

And your petitioner will ever pray.

THE MISSOURI PACIFIC RAILWAY COMPANY,
By B. P. WAGGENER,
E. M. MORSMAN, JR.,
T. L. PHILIPS,
Its Solicitors.

(Endorsed:) No. 3587. U. S. C. Ct. of Appeals, 8th Circuit. The Mo. Pac. Ry. Co., Appellant, vs. City of Omaha, Appellee. Petition for Appeal to Supreme Court of United States. Filed Jul- 9, 1912. John D. Jordan, Clerk. B. P. Waggener, Atchison, Kans., E. M. Morsman, Jr., Omaha, Neb., T. L. Philips, St. Louis, Mo., Solicitors for Appellant.

219 (*Assignment of Errors on Appeal to Supreme Court U. S.*)

And on the ninth day of July, A. D. 1912, an assignment of errors on appeal to the Supreme Court of the United States was filed in said cause, in the words and figures following, to wit:

In the United States Circuit Court of Appeals, Eighth Circuit.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA, Appellee.

Assignments of Error.

Comes now The Missouri Pacific Railway Company, the above named Appellant, and files the following assignments of error upon which is will rely upon the prosecution of its appeal from the final decree, order and judgment of this Honorable Court, made and entered the — day of May, A. D. 1912, affirming a certain final

decree, order and judgment made and entered at the September, A. D. 1910, Term of the Circuit Court of the United States for the District of Nebraska, Omaha Division, in the cause entitled, The Missouri Pacific Railway Company, Complainant, vs. The City of Omaha, Defendant, and assigns errors in the decision, judgment and decree of this Honorable Court in the said cause, as follows:

1. The Court erred in holding and deciding that the respondent had power to compel the complainant to construct a viaduct of sufficient width and strength to provide for the traffic of the street railway company over the same.

2. The Court erred in holding and deciding that the provisions of the ordinance of the city, and the plans and specifications adopted by the respondent city, requiring the complainant to construct a viaduct sufficient to provide for the traffic over the same of the street railway company, was not a taking of the property of the complainant without compensation, and was not a violation of the rights guaranteed to the complainant by the fourteenth amendment of the constitution of the United States.

3. The Court erred in holding that the provisions of the
220 ordinance of the respondent city, requiring the complainant to construct a viaduct for the traffic of the street railway company, was not the taking of the property of the complainant without due process of law, and was not a violation of the rights secured to the complainant by the constitution of the United States.

4. The Court erred in holding and deciding that the ordinance of the city and the plans and specifications adopted by it, requiring the complainant to extend the proposed viaduct to an unnecessary length, for the purpose of carrying the street traffic of Dodge Street, over a proposed boulevard of the city, parallel with the railway and some distance therefrom, was not an abuse of the power vested in the city by the statute, and was not a violation of the rights secured to the complainant by the constitution of the United States.

5. The Court erred in holding that the city has power to compel the construction of a viaduct over a grade crossing, and at the same time keep open the grade crossing.

6. The Court erred in holding and deciding and finding that the ordinance of the city was not invalid for the reason that it required the complainant to commence the construction of the viaduct within twenty-seven days after the passage of the ordinance, whereas, the evidence on both sides is conclusive to the effect that the actual construction could not commence within a period of three months after the passage of the ordinance, and until after detailed plans and specifications had been prepared and submitted to the council for approval.

7. The Court erred in holding and deciding that the ordinance was not invalid for uncertainty, in that no plans and specifications had been prepared and approved at the time of the passage of the ordinance.

8. The Court erred in holding and deciding that the ordinance was not void for uncertainty, in that the alleged plans and specifi-

cations were so indefinite and unintelligible that they could not have been followed.

9. The Court erred in affirming the action of the United States Circuit Court for the District of Nebraska, Omaha Division, in dismissing the original bill of complaint, and in not granting the prayer of said bill.

221 10. The Court erred in affirming the judgment of the United States Circuit Court for the District of Nebraska, Omaha Division, that the original bill of complaint was without equity.

In order that the foregoing assignments of error may be and appear of record, said The Missouri Pacific Railway Company presents the same to the court, and prays that said assignments of error be made a part of the record in accordance with law and the practice of this Honorable Court, and further prays the reversal of the said final decree, order and judgment made and entered by the Court.

THE MISSOURI PACIFIC RAILWAY COMPANY,
By B. P. WAGGENER,
E. M. MORSMAN, JR.,
T. L. PHILIPS,
Its Solicitors.

(Endorsed:) No. 3587. U. S. C. Ct. of Appeals, 8th Circuit. The Mo. Pac. Ry. Co., Appellant, vs. City of Omaha, Appellee. Assignment of Errors on Appeal to Supreme Court of United States. Filed Jul- 9, 1912, John D. Jordan, Clerk. B. P. Waggener, Atchison, Kans., E. M. Morsman, Jr., Omaha, Neb., T. L. Philips, St. Louis, Mo., Solicitors for Appellant.

(*Bond on Appeal to Supreme Court U. S.*)

And on the ninth day of July, A. D. 1912, a bond on appeal to the Supreme Court of the United States was filed in said cause, in the words and figures following, to-wit:

In the United States Circuit Court of Appeals, Eighth Circuit.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA, Appellee.

Appeal Bond.

Know All Men by These Presents,

That The Missouri Pacific Railway Company, as principal, and United States Fidelity and Guaranty Company, as surety, are held and firmly bound unto the City of Omaha, Nebraska, in the full and just sum of Two Thousand Dollars ($2,000.00) lawful

222 money of the United States of America, for the payment of which well and truly to be made they hereby bind them-

selves and their respective successors and assigns, jointly and severally, firmly by these presents.

Signed and sealed and dated this 5th day of July, A. D. 1912.

The condition of the foregoing obligation is such that, whereas, lately, in a suit pending in the said court, between The Missouri Pacific Railway Company, as Appellant, and the City of Omaha, Nebraska, as Appellee, a decree, order or judgment was made and entered affirming a certain decree theretofore made and entered by the Circuit Court of the United States for the District of Nebraska, Omaha Division, dismissing the bill of complaint in a certain cause entitled, The Missouri Pacific Railroad Company, Complainant, vs. The City of Omaha, Respondent, upon which decree, order or judgment of this Court an appeal has been prosecuted by said The Missouri Pacific Railway Company to the Supreme Court of the United States, to reverse the said decree, order or judgment made and entered in the above entitled cause in the United States Circuit Court of Appeals for the Eighth Circuit:

Now, Therefore, if the above bounden, The Missouri Pacific Railway Company, shall prosecute its appeal to effect, or answer and respond to all costs or damages which may be adjudged or awarded against it, if it shall fail to make good its plea, then this obligation to be null and void, otherwise to be and remain in full force and effect.

[SEAL.] THE MISSOURI PACIFIC RAILWAY COMPANY, *Principal*,
By MARTIN L. CLARDY,
Vice President & General Solicitor.

Attest:
F. W. IRLAND,
Assistant Secretary.

[SEAL.] UNITED STATES FIDELITY & GU-R-ANTY COMPANY,
By A. VAN R. SCHERMERHORN,
Attorney in Fact.

Attest:

——— ———.

223 Approved to operate as a supersedeas this 9th day of July, A. D. 1912.

WALTER H. SANBORN,
Presiding Judge of the United States Circuit Court of Appeals for the Eighth Circuit.

(Endorsed:) No. 3587. U. S. C. Ct. of Appeals, 8th Circuit. The Mo. Pac. Ry. Co., Appellant, vs. City of Omaha, Appellee. Bond on Appeal to Supreme Court of United States. Filed Jul- 9, 1912. John D. Jordan, Clerk. B. P. Waggener, Atchison, Kans., E. M. Morsman, Jr., Omaha, Neb., T. L. Philips, St. Louis, Mo., Solicitors for Appellant.

(Order Allowing Appeal to Supreme Court U. S.)

And on the ninth day of July, A. D. 1912, an order allowing an appeal to the Supreme Court of the United States was filed in said cause, in the words and figures following, to-wit:

In the United States Circuit Court of Appeals, Eighth Circuit.

THE MISSOURI PACIFIC RAILWAY COMPANY, Appellant,
vs.
THE CITY OF OMAHA, Appellee.

Order Allowing Appeal.

Now, on this 9th day of July, A. D. 1912, it is

Ordered, That an appeal of this cause to the Supreme Court of the United States be and the same is hereby allowed from the final decree heretofore entered in said cause in this Court, and that a duly certified transcript of the record and all proceedings in said cause be forthwith authenticated and transmitted to the Clerk of the Supreme Court of the United States.

It is further Ordered, That The Missouri Pacific Railway Company be and it is hereby required to give a good and sufficient appeal bond in the sum of Two Thousand Dollars ($2,000.00), conditioned according to law, the same to operate as a supersedeas bond, and bond for costs and damages on said appeal.

WALTER H. SANBORN.
Presiding Judge of the United — Circuit Court of Appeals for the Eighth Circuit.

224 (Endorsed:) No. 3587. U. S. C. Ct. of Appeals, 8th Circuit. The Mo. Pac. Ry. Co., Appellant, vs. City of Omaha, Appellee. Order granting Appeal to Supreme Court of United States. Filed Jul- 9, 1912. John D. Jordan, Clerk.

(Citation.)

And on the twenty-fourth day of July, A. D. 1912, a citation on appeal to the Supreme Court of the United States was filed in said cause, the original of which with acceptance of service endorsed thereon is hereto attached and herewith returned:

225 In the United States Circuit Court of Appeals, Eighth Circuit.

UNITED STATES OF AMERICA:

To The City of Omaha, Nebraska, Greeting:

You are hereby cited and admonished to be and appear in the Supreme Court of the United States, at the city of Washington, in the District of Columbia, thirty days from and after the day this citation bears date, pursuant to an appeal allowed and filed in the Clerk's Office of the United States Circuit Court of Appeals for the

Eighth Circuit, wherein The Missouri Pacific Railway Company is appellant and you are appellee, to show cause, if any there be, why the decree rendered against said The Missouri Pacific Railway Company as in said appeal mentioned should not be corrected, and why speedy justice should not be done the parties in that behalf.

Witness, the Honorable Walter H. Sanborn, Presiding Judge of the United States Circuit Court of Appeals for the Eighth Circuit, this 9th day of July, A. D. 1912.

WALTER H. SANBORN,
Presiding Judge of the United States Circuit Court of Appeals, Eighth Circuit.

Received copy of within citation this 18th day July 1912.
THE CITY OF OMAHA,
By JOHN A. RINE, *Its Attorney.*

[Endorsed:] No. 3587. U. S. C. Ct. of Appeals, Eighth Circuit. The Mo. Pac. Ry. Co., Appellant vs. City of Omaha, Appellee. Citation on Appeal to Supreme Court of United States. Filed Jul- 24, 1912. John D. Jordan, Clerk. B. P. Waggener, Atchison, Kans.; E. M. Morsman, Jr., Omaha, Neb.; T. L. Phillips, St. Louis, Mo., Solicitors for Appellant.

226 (*Clerk's Certificate.*)

United States Circuit Court of Appeals, Eighth Circuit.

I, John D. Jordan, Clerk of the United States Circuit Court of Appeals for the Eighth Circuit, do hereby certify that the foregoing transcript contains full, true and complete copies of all the pleadings, record entries and proceedings, including the opinion of said United States Circuit Court of Appeals for the Eighth Circuit, in a certain cause in said Court wherein The Missouri Pacific Railway Company is Appellant, and The City of Omaha, is Appellee, No. 3587, as full, true and complete as the originals of the same remain on file and of record in my office.

I do further certify that the original citation, with proof of service thereof, is hereto attached and herewith returned.

In Testimony Whereof, I hereunto subscribe my name and affix the seal of the United States Circuit Court of Appeals for the Eighth Circuit, at office in the City of St. Louis, Missouri, this second day of August, A. D. 1912.

[Seal United States Circuit Court of Appeals, Eighth Circuit.]

JOHN D. JORDAN,
Clerk of the United States Circuit Court of Appeals for the Eighth Circuit.

Endorsed on cover: File No. 23,328. U. S. Circuit Court Appeals, 8th Circuit. Term No. 327. The Missouri Pacific Railway Company, appellant, vs. The City of Omaha. Filed August 7, 1912. File No. 23,328.